COLONY AND PROTECTORATE OF KENYA.

ANNUAL MEDICAL REPORT

FOR THE

YEAR ENDING 31ST DECEMBER, 1920.

G/KENYA 438.

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No. 16/621/64.

MEDICAL DEPARTMENT,

HEAD OFFICES,

NAIROBI,

8th September, 1921.

SIR.

I HAVE the honour to submit, for the information of His Excellency the Acting Governor and for transmission to the Right Honourable the Secretary of State, the Medical Report on the health and sanitary condition of the Colony and Protectorate of Kenya for the year 1920, together with the Returns, &c., appended thereto.

I have the honour to be,

SIR,

Your obedient servant,

JOHN L. GILKS,

Principal Medical Officer,

Colony and Protectorate of Kenya.

The Honourable,

The Acting Colonial Secretary,

Nairobi.

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I.—ADMINISTRATION.

SECTION I.—DEPARTMENTAL.

1.—ESTABLISHMENT.

The Medical Staff of the Colony as sanctioned for the year 1920 was as follows :—

ADMINISTRATIVE DIVISION.

Principal Medical Officer	1
Deputy Principal Medical Officer	1
Chief Sanitation Officer	1
Office Superintendent	1
European Clerks	2
3rd Grade Clerks	5
4th Grade Clerks	14
5th Grade Clerks	6
Medical Storekeeper	1
Issuer of Medical Stores	2
Messengers and Packers	15

MEDICAL DIVISION.

Senior Medical Officers	5
Resident Surgeon, European Hospital, Nairobi ...	1
Dental Surgeons	1
Medical Officers	19
District Surgeons	3
European Dispensers	4
Matron	1
Nursing Sisters	25
Male Nurses	2
Superintendent, Lunatic Asylum	1
European Warders, Lunatic Asylum	2
Matron, Lunatic Asylum	1
Assistant Matron, Lunatic Asylum	1
Assistant Surgeons	8
Sub-Assistant Surgeons	47
Compounders	18
Native Hospital Attendants	(as necessary)
Native Asylum Attendants	(as necessary)

SANITATION DIVISION.

Sanitation Officers	2
Senior Medical Officers of Health	3
Medical Officers of Health	8
Sanitary Inspectors...	14
Nurses	2
European Clerk	1
Superintendent, Infectious Deseases Hospital ...	1
Vaccinators	57
Mechanics for Clayton Disinfectors	4
Native Hospital Attendants, &c.	(as necessary)

LABORATORY DIVISION.

Senior Bacteriologist	1
Assistant Bacteriologists	2
European Laboratory Assistant	1
Asiatic Laboratory Assistants	3
Native Laboratory Attendants	(as necessary)

2.—APPOINTMENTS.

The following appointments were made during the year :—

Medical Officers.

Briscoe, R. C., 23rd March, 1920.
de Boer, H. S., 7th May, 1920.
Braimbridge, C. V., 23rd December, 1920.
Cross, G. (District Surgeon), 1st October, 1920.
Dakers, B. W., 25th June, 1920.
Guinness, E. W. N. (temporary), 1st May, 1920.
Peacock, N. B., 17th April, 1920.
Pope, G. W., 31st December, 1920.
Welch, H. H. V. (Resident Surgeon), 15th August, 1920.

Nursing Sisters.

Aitken, Miss M., 27th August, 1920.
Buckley, Miss G. M., 17th September, 1920.
Cameron, Miss I., 18th August, 1920.
Edwards, Miss M., 6th August, 1920.
Froneman, Miss E. M., 1st August, 1920.
Hayward, Miss H., 6th August, 1920.
Murdoch, Miss J. D., 25th August, 1920.
Munro, Miss M. B., 10th September, 1920.

Laboratory Assistant.

Bailey. F. A., 20th August ,1920.

Dispenser.

Edmonds, E. R., 23rd December, 1920.

European Clerks.

Scattergood, G. E., 19th July, 1920.
Webb, A. E. W., 13th August, 1920.

Assistant Surgeon.

Whittle, A., 4th November, 1920.

Sub-Assistant Surgeons.

Sayed Asghar Ali, 17th February, 1920.
Gokul Chand, 18th June, 1920.
Karim Bakhsh, 1st April, 1920.
Munshi Ram Gupta, 11th January, 1920.
Pathreekar, A. K., 16th August, 1920.
Rana, C. D., 28th August, 1920.

COMPOUNDERS.

Beant Ram Sharma, 25th November, 1920.
Chanan Singh, 4th August, 1920.
Marathe, B. V., 4th August, 1920.
Pradham, D. G., 9th September, 1920.
Rajey, B. G., 28th August, 1920.
Jagat Singh, 17th September, 1920.

CLERKS.

Baena, A. J., 18th September, 1920.
D'Souza, B. M., 4th August, 1920.
Figueiredo, J. N., 25th February, 1920.
Martyres, C. J., 14th April, 1920.
Nunes, A., 6th December, 1920.

3.—REDUCTIONS IN STAFF.

RETIRED TO PENSION.

Dr. J. A. Haran, Deputy Principal Medical Officer, 18th June, 1920.
,, W. J. Radford, Principal Sanitation Officer, 6th December, 1920.

TRANSFERRED TO TANGANYIKA TERRITORY

Dr. W. Owen-Prichard, 24th September, 1920.

RESIGNATIONS, ETC.

Dr. A. H. Boon, Temporary Medical Officer, resigned 30th August, 1920.
,, H. A. Bodeker, Temporary Medical Officer, resigned 10th May, 1920.
,, M. F. Murphy. Temporary Medical Officer, resigned 20th August, 1920.
,, J. H. Neill, Temporary Medical Officer, resigned 31st July, 1920.
,, A. C. Rendle, Temporary Medical Officer, resigned 6th March, 1920.
,, T. B. Welch, Temporary Medical Officer, resigned 31st July, 1920.
Mr. F. Cribb, Medical Dispenser, resigned 20th April, 1920.
,, R. Davis, Clerk, transferred to Education Department, 1st November, 1920.
,, G. C. Wellington, Sanitary Inspector, resigned 30th November, 1920.
,, J. D. Nightingale, Clerk, services terminated 9th March, 1920.
,, J. F. Davidson, Temporary Sanitary Inspector, services terminated 2nd February, 1920.
,, A. F. Summerfield, Nursing Orderly, transferred to Postal Department, 19th July, 1920.
Miss K. L. Fletcher, Nursing Sister, resigned 20th May, 1920.
,, A. E. Drewe, Nursing Sister, resigned 10th March, 1920.
,, A. B. Sewell, Nursing Sister, resigned 31st December, 1920.
,, M. Walton, Nursing Sister, resigned 29th February, 1920.
,, D. E. Godden, Assistant Matron, Asylum, resigned 4th February, 1920.
Mr. P. T. Bhatt, Compounder, resigned 30th November, 1920.
,, M. M. Chettanram, Compounder, resigned 29th February, 1920.
,, B. V. Marathe, Compounder, services terminated 12th December, 1920.
,, M. M. Jamidar, 4th Grade Clerk, resigned 31st July, 1920.
,, P. N. Pinto, 4th Grade Clerk, resigned 29th March, 1920.

INVALIDED.

Chief Vaccinator, Abdullah Ahmedi, 30th September, 1929.

DEATHS.

4th Grade Clerk, A. Alvares, 2nd February, 1920.
Attendant Infectious Diseases Hospital, K. S. S. Mudeliar, 19th November, 1920.

4.—LEAVE OF ABSENCE.

Name.	Appointment.	Period.	
		Departed.	Returned.
Dr. A. D. Milne ...	Prin. Medical Officer ...	15th August, 1920 ...	...
,, G. R. H. Chell ...	Medical Officer	15th July, 1920 ...	...
,, W. H. Kauntze	Bacteriologist	15th July, 1920 ..	...
,, J. Pugh	Medical Officer	25th September, 1920	...
Mr. H. Ogden ...	Dispenser	24th February, 1920	...
,, F. Strawbridge ...	Sanitary Inspector ...	15th August, 1920...	...
,, W. Henfrey ...	Supt., Lunatic Asylum	10th December, 1920	...
Mrs. L. A. Henfrey ...	Matron ,, ,,	10th December, 1920	...
,, E. R. Barrett ...	Matron	8th February, 1920 ..	6th November, 1920
Miss I. Wilson ...	Nursing Sister	1st May, 1920 ...	...
,, A. St. C. Nicholl	,, ...	15th July, 1920 ...	...
,, M. A Thomlinson	,, ...	15th August, 1920 ...	...
,, F. O'Neill ...	,, ...	15th August, 1920 ...	...
,, F. L. Neave ...	Dispenser	1st November, 1920	...

5.—RESUMPTION OF DUTY FROM LEAVE GRANTED IN 1919.

Name.	Appointment.	Date.
Dr. T. F. Lumb	Medical Officer	24th July, 1920.
,, P. F. Nunan	,, ,, ...	24th July, 1920.
,, A. R. Paterson	,, ,, ...	1st December, 1920.
,, V. G. L. van Someren	Dental Surgeon	31st March, 1920.
,, J. H. Thomson	Medical Officer	2nd July, 1920.
,, C. J. Wilson	,, ,, ...	6th March, 1920.
Mr. P. Cairns	Sanitary Inspector	23rd March, 1920.
,, J. P. Cook	,, ,, ...	20th September, 1920.
,, E. E Williams	,, ,, ...	19th November, 1920.
,, J. S. Robertson, ...	Medical Storekeeper	24th July, 1920.
,, R. Stanley	Office Superintendent	19th September, 1920.
Miss H. M. Whitburn	Nursing Sister	26th March, 1920.
Mrs. S. J. Harrison	,, ,, ...	25th June, 1920.

6.—STAFF POSTINGS THROUGHOUT THE YEAR.

THE COAST ZONE.

Dr. C. L. Chevallier, Senior Medical Officer, continued to act in this appointment till the end of April, when he was moved to Nairobi as Deputy Principal Medical Officer.

Dr. J. Pugh succeeded Dr. Chevallier as Acting Senior Medical Officer, Mombasa, until he proceeded on leave in September, when Dr. T. H. Massey was appointed in a like capacity to replace him.

Dr. J. Pugh was Medical Officer in charge of the European Hospital, Mombasa, until September, and was then relieved to proceed on leave by Dr. J. H. Thomson, who remained in charge till the end of the year.

Dr. T. H. Massey was in medical charge of the Native Civil Hospital throughout the year.

Dr. A. S. Mackie was posted to Lamu in January, and continued in medical charge of the Tanaland Province throughout the year.

Dr. G. Walker held the post of Medical Officer of Health at Mombasa throughout the year.

THE MOUNTAINOUS ZONE.

Dr. A. D. Milne, C.M.G., Principal Medical Officer, proceeded on leave in September, pending retirement. Dr. J. L. Gilks succeeded him as Acting Principal Medical Officer for the remainder of the year.

Dr. W. H. Kauntze acted as Resident Surgical Officer of the European Hospital, Nairobi, till Dr. Gilks' return from England in April, when the latter resumed his post. On being appointed Acting Principal Medical Officer Dr. Gilks was relieved by Dr. H. H. V. Welch, as Resident Surgical Officer, in which appointment he continued for the remainder of the year.

Dr. F. L. Henderson, Senior Medical Officer, was in charge of the Native Civil Hospital and Mathari Lunatic Asylum, Nairobi, throughout the year.

Dr. G. R. H. Chell was in medical charge of the King's African Rifles, Police and Prison, from January to July, when he was succeeded by Dr. V. M. Fisher for the remainder of the year.

Dr. F. T. Auden was in medical charge of Nakuru and Naivasha Province till March, when he was succeeded by Dr. C. J. Wilson, who continued in the post till the end of the year.

Lieut.-Col. M. C. Wetherell continued in medical charge at Eldoret throughout the year.

Dr. H. A. Bodeker was temporarily engaged as Medical Officer of Health, Nairobi, from January to May, when he was succeeded by Dr. E. W. N. Guinness.

THE KENYA AND NYANZA PROVINCES.

Dr. P. A. Clearkin was in medical charge of the Kisumu Hospital and Nyanza Province from January to April, when Dr. N. B. Peacock took over and he again was relieved in July by Dr. T. F. Lumb, who continued in charge till the end of the year.

Drs. R. C. Briscoe and N. B. Peacock did duty as temporary Medical Officer of Health at Kisumu during the early months of the year until the appointment of Dr. H. S. de Boer in July to that post.

Dr. T. B. Welch was in medical charge of Fort-Hall Hospital and Kenya Province till April, when he proceeded home, and was relieved by Dr. F. T. Auden.

Dr. H. R. A. Philp was District Surgeon at Nyeri throughout the year.

Dr. P. F. Nunan was appointed to the medical charge of Kakamega Hospital and North Kavirondo district in July, and is still so employed.

THE DESERT ZONE.

Dr. A. H. Boon was in medical charge of the Northern Frontier District till he proceeded on leave in June, when Dr. R. C. Briscoe succeeded him.

Dr. J. H. Neill was in medical charge at Kismayu until he went home in May, when Dr. N. B. Peacock took up the duties.

7.—LABORATORIES.

Dr. W. H. Kauntze, Bacteriologist, was in charge till he proceeded on leave in July, when the duties were taken over by Dr. P. A. Clearkin.

Annual reports on the work of the Laboratory are published.

8,—LIBRARIES.

A medical library is maintained at the Laboratory and a lesser one at the Headquarter Medical Offices, both of which are available for personal reference by medical officers. Books are issued on loan to all medical officers who make application. The libraries are being added to by the purchase of the latest medical publications from time to time.

SECTION II.—EXTRA DEPARTMENTAL.

9.—REGISTRATION OF MEDICAL PRACTITIONERS AND DENTISTS ORDINANCE.

The ordinance governing registration came into force on the 24th September, 1919, since when and up to the end of the year the following have been placed on the register :—

Registered Medical Practitioners	99
Licensed	6
Dentists	7

Sixty of the medical practitioners, including the Government Dental Surgeon, were in Government service, and 52 were private practitioners.

During the year the following were admitted to the roll :—

Forbes, Armitage, E. F. L., L.D.S., R.F.P.S., Glasg.
Richards, Norman Lloyd, M.R.C.S., Eng., L.R.C.P., Lond.
Glanville, Ruby Ellen, M.B., B.S., U. Lond.
Peacock, Norman B., M.B., Ch.B., U. Glasg.
Norrie, Forster H. B., M.B., Ch.B., U. Aberd.
Anderson, Gerald V. W., M.R.C.S., Eng., L.R.C.P., Lond., F.R.C.S., Eng., M.B., B.S., Lond.
Briscoe, Ralph C., M.R.C.S., Eng., L.R.C.P., Lond.
Guinness, Ernest W. N., L.R.C.P. & S., Irel., D.P.H., Lond.
Irvine, Archibald C., M.B., Ch.B., U. Aberd.
Hemsted, Henry, M.R.C.S., Eng., L.R.C.P., Lond.
Jog. Shridshar C., L.R.C.P., L.R.C.S., Edin., L.F.P.S., Glasg.
de Boer, Henry S., M.R.C.S., Eng., L.R.C.P., Lond., D.P.H., Camb.
Cross, Geoffrey, M.R.C.S., Eng., L.R.C.P., Lond., L.S.A., Lond., M.D.U., Durham.
Cunningham, James, M.B., B.S., R.U. Irel.
Cunningham, Robert A., M.B., B.S., R.U. Irel., D.P.H., R.C.P.S., Edin., and R.F.P.S., Glasg.
Paterson, Arthur R., M.B., Ch.B., U. Glasg., D.P.H., Camb.
Jex-Blake, Arthur J., M.B., B.Ch., U. Oxford., M.R.C.P., Lond., M.D., U. Oxford, F.R.C.P., Lond.
Dakers, Bernard W., L.R.C.P., Edin., L.R.C.S., Edin., L.F.P.S., Glasg.

The Board nominated for the purpose of the Ordinance consisted of :—

Dr. R. W. Burkitt,
„ C. L. Chevallier,
„ W. J. Radford,
„ J. A. Haran,

with the Principal Medical Officer as President and Registrar.

No meetings were held during the year.

10.—THE DRUGS AND POISONS ORDINANCE, 1909.

This Ordinance controls the licensing of chemists and druggists, as well as the sale of poisons throughout the country.

Eighteen names have been placed on the register since the introduction of the Ordinance to the end of 1920. Of these three were by examination.

The Board appointed under the Ordinance consisted of the following :—

Mr. L. A. Howse,
„ A. A. White,
„ V. H. Kirkham,
Dr. C. L. Chevallier,
„ W. J. Radford,
„ J. A. Haran,

with the Principal Medical Officer as President and Registrar.

One meeting was held during the year.

II.—PUBLIC HEALTH.

(a)—GENERAL REMARKS.

THE COLONY AND PROTECTORATE OF KENYA.

The public health of the Colony and Protectorate has again showed, during 1920, an improvement on that obtaining in the war and post-war conditions. The weather conditions have been good and the resulting good harvest has reflected itself in a satisfactory condition of the public health. Epidemics of plague broke out in the North Kavirondo district, the Kikuyu Reserve and Mombasa, and it is evident that the problems of this disease will become increasingly urgent throughout the country generally. The Vanga district was visited by small-pox and the distress caused by the disease itself was exaggerated from the fact that the natives deserted their villages, and with them, their crops. Both these epidemics are dealt with at length by the Acting Chief Sanitation Officer in his report.

A disquieting discovery was made in that it was found that typhus or a typhus-like disease is present in the country, and the problems caused by this will have to be faced. The disease has been undoubtedly present for years past, but it had been of such a mild type that it had caused no uneasiness; the virulence appears to be increasing, and one death occurred. A description, with a report on cases, is presented as an appendix.

The long delayed arrival of new staff has allowed a commencement of the scheme for medical facilities in the Native Reserves and two Government centres have been opened. Even at this early date it is apparent that the scheme will prove a success.

The medical service of the King's African Rifles is being re-organised. Hitherto the personnel of the military medical service has been entirely civilian, and in the past this has given rise to difficulty with regard to status and more especially in the direction of pay and administration in the remote districts. With an enlisted subordinate service and a medical officer holding a local commission, it is anticipated that a good deal of confusion will be obviated. The final word with regard to medical matters will remain as heretofore with the principal Medical Officer.

Attempts are being made for the provision of more up-to-date methods of the treatment of venereal disease in the various native hospitals, and it is hoped that next year considerable progress will be made in this. The difficulty will be the necessary provision of suitable buildings. The results of treatment of syphilis with 914 have resulted in a certain demand among the native population and cases present themselves more readily. The longer and less startling effects of treatment for gonorrhœa results in weariness and a disinclination to continue treatment for a disease of which all the painful symptoms have disappeared.

There has been a large influx of European settlers during the year, and the poor white element is beginning to show itself. The increase of the European population is reflected in the increased numbers admitted to hospital and the increased births and deaths. Together with the increase in white population there is an increase in private medical practitioners with the result that the official return of diseases is becoming less comprehensive.

The death rate among European officials was ·34 per cent., and among Native officials ·53 per cent.

The total cases treated in the various hospitals and dispensaries show an increase of nearly ten thousand, while the deaths show a gratifying decrease. The following table shows the figures for the past three years :—

	Cases.	Deaths
1920	132,329	899
1919	122,901	1,253
1918	122,643	2,030

European births and deaths totalled :—

Births	183
Deaths	88

Registration of births and deaths is not compulsory among the Asiatic and native population, and no figures are obtainable on this subject.

It is proposed that a new census be taken in 1921.

A comprehensive Public Health Bill has been passed by the Legislative Council and awaits sanction from home. This Bill follows very closely the South African legislation, and presents several features novel to the country, notably the creation of a Central Board of Health with the Principal Medical Officer as chairman, which will be responsible for Public Health matters throughout the Colony and Protectorate.

NATIVE RESERVES.

The year 1920 has seen the commencement of the long-deferred scheme for the provision of Government medical centres in Native Reserves. On the return from leave of Dr. P. F. Nunan, in August, this officer was posted to the North Kavirondo district and commenced work at Kakamega, the new station established on the abandoning of Mumias condemned on account of its extreme unhealthiness and high mortality among officials. Dr. B. W. Dakers, on arriving in the country in September, was posted to South Kavirondo with headquarters at Kisii.

In 1919, two branches of the Scotch Mission at Tumu-Tumu and Kikuyu were subsidised by Government, and this arrangement was continued throughout 1920.

Even at this early stage it is evident that the two Government stations are filling a long-felt want and performing work of the utmost value from the humanitarian, the administrative and the economic point of view. In addition to these, all-important Public Health requirements will be fulfilled by the establishment of units in Native Reserves, and the infectious diseases of the country will be tackled at the root, *i.e.*, in the Reserves, the reservoirs of the diseases and not, as heretofore, in the various townships to which the disease has penetrated. From the humanitarian point of view there can be no doubt as to the value of this section of the activities of the Medical Department, and the administration of the country will be rendered easier from the fact that the native has tangible evidence that Government is something more than a mere tax-collector. The economic factor enters very largely also into the question of the provision of medical units in Reserves; the fighting of infectious disease and medical attention, even of the simplest, for disorders which, if left untreated, or when treated by native methods often result in permanent disablement, can only result in an increase of the population able to perform work and pay taxes.

The system which is being adopted is the provision of a central hospital with small dispensaries situated at the denser centres of population within easy reach of the central station. The dispensaries are manned by dressers able to read and write Swahili, who are trained at the central hospital to do dressings and give simple remedies, and these boys, with supervision at frequent intervals by the Medical Officer, do work of the utmost value in the dressing of ulcers and wounds. To illustrate the value of these trained dressers it is only necessary to mention that the common native practice in Kavirondo for the dressing of wounds and ulcers is to apply a cow dung poultice which remains in position for a varying time and results usually in the production of a deep fungating ulcer. These ulcers which frequently involve bone, muscle and tendon are one of the commonest causes of permanent disability.

The good results of the establishment of dispensaries are such that frequent application is made by the local chiefs for the provision of one for their own particular district, and the building, wattle and daub, is erected willingly by the local population, without cost to Government, when it is decided that a particular district is suitable and a dresser is available. Serious cases are brought from the dispensaries to the central hospital.

At the end of the year in the North Kavirondo district nine dispensaries were in existence and arrangements were on foot for the provision of more. At Kisii, it had not been possible to do more than to get the central station under way and to begin to obtain the confidence of the natives. It is most satisfactory to note that even after such a short time the Kisii natives are trusting the European doctor and are beginning to bring in their women and children for treatment.

The system of a central hospital with sub-dispensaries is one which was originally adopted by the Scotch Mission, who are doing medical work of the greatest value among the Kikuyu, and who, as already mentioned, receive a subsidy from Government.

The work in North Kavirondo has very largely consisted in measures to combat the serious outbreak of plague which occurred in that district. The steps which have been taken have consisted mainly in the prophylactic inoculation of the population, and this work has been carried out mainly through the agency of trained inoculators, who have been stationed at the bridges over

the large rivers forming the boundaries of the district. The adoption of this method resulted in the inoculation of a very large proportion of the population, as shown by the almost universal incidence of the dated and named inoculation tickets issued to those inoculated. At the same time as the inoculation was being carried out, an educational campaign was instituted, and it is hoped that next year it will be possible to report progress with regard to the undertaking of a more comprehensive anti-plague campaign than has been hitherto possible.

At Kisii it is evident that a large part of the work will consist in the combating of yaws, the incidence of which appears to be as extensive as in Kikuyu, where the Scotch Mission are carrying out numerous treatments.

During the year under review the figures for the native reserve centres have been incorporated among those of the various districts. If at all possible, I propose next year to give a separate return for this branch. The figures for the Scotch Mission, as provided by them, are as follows :—

	In-patients.	Out-patients.
Kikuyu	1,750	16,003
Tumu Tumu	1,604	59,867.

During the financial year 1920-21 the sum of £10,569 was provided in the Estimates for the provision of Government medical units in Native Reserves, and this sum is being expended on the provision of permanent small hospitals and medical officers' houses at Kisii and Machakos. At Kisii there is at present a small stone and wood and iron dispensary with accommodation for six beds, but this is hopelessly inadequate for the work at present being undertaken, and it has been found necessary to provide grass huts for the accommodation of the less serious cases, ulcers and yaws, which have applied. At Kakamega, which is not yet definitely decided on as being the site of the new station, in common with all the rest of the buildings, the hospital and medical officer's house are constructed of wattle and daub.

It is proposed, during 1921, to extend considerably the system of Government medical units in Native Reserves, provided that personnel comes forward, and I hope to be able to record a considerable advance next year in this direction. I am convinced that the right method of working is by the Government starting their own units rather than by subsidising missions to do the work for them. By the establishment of Government units the native is brought to realize that the money obtained from him by taxation is not being spent entirely on services of which, at present, he cannot see the benefit, and, at the same time, the work is directly under the supervision and control of Government, with no fear of arousing disputes with religious bodies to whom a subsidy may be refused or terminated.

The scope of the work and the policy to be pursued with regard to medical work in the Native Reserves is one which calls for serious consideration. The amount of work and the material for the study of disease is almost without limit. It will be necessary to provide for the treatment of venereal diseases and to institute centres for midwifery training and treatment, in addition to the ordinary facilities for the treatment and study of disease. The point now arises as to how money is to be found to provide for these various activities. I am of opinion that at first all treatment should be provided free in all cases, for two reasons :—(*a*) to more easily obtain the confidence of the native and so impress him with the advantages of European methods of treatment and sanitation and (*b*) to discharge part of the debt due from taxation, but as the work increases it will have to be seriously considered whether a charge of some kind will not have to be made as is done at the present time by the missions.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST EUROPEAN OFFICIALS IN THE COLONY AND PROTECTORATE OF KENYA.

	1918.	1919.	1920.
Total number of officials resident	909	1,118	1,259
Average number resident	691	663	746
Total number on sick list	679	748	574
Total number of days on sick list	7,042	5,997	6,373
Average daily number on sick list	19·29	16·43	17·41
Percentage of sick to average number resident... ...	2·79	2·47	2·33
Average number of days on sick list to each patient ...	10·37	8·01	11·12
Average sick time to each resident	7·74	5·36	5·39
Total number invalided	33	38	28
Percentage of invaliding to total residents	3·63	3·39	2·36
Total deaths	10	15	4
Percentage of deaths to total residents	1·10	1·34	·34
Percentage of deaths to average number resident ...	1·44	2·26	·53
Number of cases of sickness contracted away from residence	—	—	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST NATIVE OFFICIALS IN THE COLONY AND PROTECTORATE OF KENYA.

	1918.	1919.	1920.
Total number of officials resident	1,999	2,252	2,392
Average number resident	1,614	1,717	1,762
Total number on sick list	4,755	4,703	4,439
Total number of days on sick list	33,563	33,159	30,053
Average daily number on sick list	91·95	90·84	82·11
Percentage of sick to average number resident ...	5·69	5·29	4·66
Average number of days on sick list to each patient ...	7·05	7·05	6·77
Average sick time to each resident	16·79	14·72	13·29
Total number invalided	63	62	60
Percentage of invaliding to total residents	3·15	2·75	2·65
Total deaths	33	15	12
Percentage of deaths to total residents...	1·65	·66	·53
Percentage of deaths to average number resident ...	2·04	·87	·68
Total number of cases of sickness contracted away from residence	—	—	—

I.—THE MOUNTAINOUS ZONE.

(*a*). GENERAL REMARKS.

The total figures for admissions to hospital in this area show an increase of 472 on the figures for 1919, but analysis of the subjoined table reveals the fact that there has been a considerable drop in the number of admissions for officials, both native and Europeans, a small increase in the number of the native general population, while the number of the general European population admitted to hospital is more than double the number in 1919. This is accounted for by the large influx of European settlers.

The total number of deaths is 202 less than last year.

(i). GENERAL DISEASES.

The table of hospital admissions and deaths for the past three years is as follows :—

	In-patients.			Deaths.		
	1920.	1919.	1918.	1920.	1919.	1918.
European Officials	376	491	453	3	10	9
Native Officials...	3,012	3,137	3,120	6	6	22
European General Population	560	218	246	19	11	21
Native General Population	7,308	6,938	6,959	488	691	1,048

It is in this part of the country that the cases of typhus have all occurred, thus coinciding with the fact that the disease is more common in the temperate zones than in the tropical.

During the year it has been impossible to do anything with regard to the provision of a new native hospital at Nairobi. The present building dating back as it does to the early days of European occupation, and constructed with wooden floors and corrugated iron walls, is entirely unsatisfactory and unsuitable. It is hoped that when the loan project materializes, it will be possible for an up-to-date hospital to be constructed, and money has been earmarked for this purpose.

(ii.) COMMUNICABLE DISEASES.

MOSQUITO OR INSECT-BORNE.

Malaria.—There has been a large drop during the year in the number of cases treated as compared with 1919, though the deaths are more numerous. The reports from the Naivasha Province all indicate that the cases are probably imported from outside, although the actual numbers have increased. Statistics from the European Hospital, Nairobi, are interesting as showing that the proportion of subtertian to benign tertian infections is approaching the pre-war figures, which showed a vastly greater incidence of subtertian as compared with benign tertian. The actual figures given are :—

Subtertian	86
Benign tertian	10

The years at the close of the war showed an equal incidence of benign and subtertian malaria. Quartan malaria still remains a rare disease in the Colony and Protectorate.

The total of cases treated and deaths for the past three years, is as follows :—

	Cases.	Deaths.
1920	4,569	 31
1919	7,975	 26
1918	4,499	 22

Blackwater Fever.—Coincident with the large drop in the number of cases of malaria is a corresponding drop in the incidence of blackwater fever, and only three cases were reported. Only one European case occurred, and this terminated fatally.

The figures for the past three years are as follows :—

	Cases.	Deaths.
1920	3	2
1919	28	5
1918	4	3

Lieut.-Col. M. C. Wetherell comments with regard to blackwater fever that he notices the usual history of repeated attacks of malaria, combined with the sudden taking of a large dose of quinine. The official figures with regard to blackwater are distinctly misleading, as I personally know of at least five cases which have been treated by one private practitioner, and of which there is no cognisance in the official returns.

INFECTIOUS OR EPIDEMIC.

Plague.—During the year an outbreak of plague occurred in Nairobi, following on the outbreak in the Kikuyu Reserve in the neighbourhood of Kyambu, where for some months a special plague officer was appointed. The numbers of cases in the Reserve are not obtainable, but the figures for Nairobi and Kyambu are respectively 46 cases, with 25 deaths and 5 cases with 3 deaths. One case occurred at Eldoret and one at Kacheliba, both fatal and from Nairobi, with a total of 308 cases. The Nakuru figures were 176.

The totals of cases and deaths for the past three years are :—

	Cases.	Deaths.
1920	53	30
1919	2	1
1918	8	5

Cerebro-spinal Meningitis.—A decrease in the number of cases for this disease occurred and all were amongst natives.

The figures are :—

	Cases.	Deaths.
1920	41	18
1919	69	36
1918	52	28

Dysentery.—A marked decrease is recorded this year as against the preceding years, though the reason for this is not obvious. The only figures which have a bearing on the relative incidence of amoebic and bacillary dysentery are those of the European Hospital, Nairobi, where out of a total of 9 cases 8 were amoebic. The highest return of cases of dysentery comes from Nairobi with a total of 308 cases. The Nakuru figures were 176.

The comparative table of cases and deaths is :—

	Cases.	Deaths.
1920	640	23
1919	1,634	103
1918	2,967	236

Typhoid group.—The figures for this important group of diseases show a large drop from the preceding year. One case of para-typhoid is reported, and I am convinced that the more systematic examination of blood in cases of pyrexia of uncertain origin, and apparently mild cases of typhoid will reveal the fact that there is a considerable incidence of this infection. Of

the 18 cases reported, 15 were in Europeans, and the locality of the cases shows that the disease is widespread over the area under consideration. Seven of these European cases occurred at Nairobi, 4 at Nakuru and 1 each at Naivasha, Eldama-Ravine, Rumuruti and Kacheliba.

The comparative table is as follows :—

	Cases.	Deaths.
1920	18	—
1919	40	8
1918	17	2

Leprosy.—Eleven cases were reported, as compared with 3 last year and 8 in 1918.

Small-pox showed a notable decrease on the figures for the preceding years, as is evident from the following :—

	Cases.	Deaths.
1920	29	4
1919	157	48
1918	1,047	282

Beri-beri.—Fifty-nine cases were reported during the year with 2 deaths. Of these cases 49 occurred at Makindu, the patients being labourers employed in the various fuel camps on the railway in the waterless district to the east of that station. Thirty-two of the 49 cases occurred at one camp. It is unfortunately a fact that certain of the Indian fuel contractors are not too scrupulous with regard to the food supplied to their labourers, and without more frequent inspection it is almost certain that outbreaks of this disease will recur.

Tetanus.—Six cases occurred, three of which were fatal. This is an increase on the previous two years when only one case was recorded.

Influenza.—This disease still makes itself evident throughout the country, but the type is not more virulent than last year. The number of cases, 2,685, is a large increase on the 1,006 of last year, while the deaths, 19, were the same in both cases.

Pneumonia.—The figures for this show an increase on the numbers of the previous year and approximate to those of 1918, the figures being :—

	Cases.	Deaths.
1920	941	225
1919	750	198
1918	951	283

Fourteen cases with three deaths occurred among Europeans. A small outbreak of pneumonia occurred among the children at the Eldoret School, where six cases occurred.

Tuberculosis.—Although the number of cases, 93 with 14 deaths, which are recorded for 1920, is not larger than that of 1919, I have no doubt that this disease is on the increase among the native population.

There is an unfortunate tendency on the part of Europeans suffering from tuberculosis of the lungs to come from Europe to Nairobi, hoping to be cured of their disability, while there is no doubt that certain healthy country districts are suitable for tubercular subjects, it is unfortunately true that Nairobi is most distinctly bad in this respect, possibly on account of the dust.

The comparative table of cases and deaths is as follows :—

	Cases.	Deaths.
1920	93	14
1919	99	9
1918	64	4

Venereal diseases.—There is no doubt that these diseases are on the increase, though I am inclined to think that the increase in the case of syphilis is not so large as is popularly supposed, owing to confusion between syphilis and yaws. As stated in the general remarks, efforts are being made to provide more up-to-date facilities for treatment of this class of case.

The numbers for the past three years are as follows :—

	In-patients.			Out patients.		
	1920.	1919.	1918.	1920.	1919.	1918.
Syphilis ..	334	154	60	405	341	153
Gonorrhœa ..	146	157	56	370	344	221

Six deaths were returned as being due to syphilis—four as secondary syphilis and two as inherited.

HELMINTHIC.

The cases treated and their classification for the past three years are as under :—

		1920.	1919.	1918.
Cestoda.	T. solium	226	231	144
	T. saginata ..	76	24	4
Nematoda.	A. lumbricoides ..	16	37	25
	T. dispar	1	1	4
	A. duodenale ..	45	141	2
	O. vermicularis ..	2	—	5

(*b*) EUROPEAN OFFICIALS.

During 1920 the daily average of sick, 12·94, was slightly larger than last year, when the number was 11·67, but this is accounted for by the fact that an average of 516 officials were resident in the year under consideration, as against 465 in the year before.

As against the slight increase in the daily average of sick, there is a falling off in the numbers treated as shown in the following table :—

	In-patients.	Out-patients.
1920	376	205
1919	491	350
1918	453	236

The drop in the number of deaths is remarkable, being only 3, as against 10 and 9 in the two preceding years. The deaths were due to pneumonia (2) and carcinoma of the sigmoid (1). The last case, unfortunately, was not brought to hospital till some days after obstruction had supervened.

The principal causes of admission were :—Malaria (102), digestive diseases (126), dysentery (5), respiratory diseases (29), influenza (73), and injuries (65).

The number invalided was 18, as compared with 23 in 1919 and 17 in 1918. The causes being: Alcoholism (1), general debility (1), neurasthenia (4), cephalalgia (1), epilepsy (2), inflammation of ear (1), tachycardia (2), bronchitis (1), haemoptysis (1), asthma (1), dyspepsia (1), duodenal ulcer (1), abscess of liver (1).

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST EUROPEAN OFFICIALS IN THE MOUNTAINOUS ZONE.

	1918.	1919.	1920.
Total number of officials resident	645	830	871
Average number resident	483	465	516
Total number on sick list	453	491	376
Total number of days on sick list	5,220	4,261	4,737
Average daily number on sick list	14·30	11·67	12·94
Percentage of sick to average number resident ...	2·96	2·50	2·50
Average number of days on sick list to each patient ...	11·52	8·67	12·59
Average sick time to each resident	8·15	5·13	5·43
Total number invalided	17	23	18
Percentage of invaliding to total residents	2·63	2·77	2·06
Total deaths	9	10	3
Percentage of deaths to total residents	1·39	1·20	·34
Percentage of deaths to average number resident ...	1·86	2·15	·58
Number of cases of sickness contracted away from residence	—	—	—

(*c*) NATIVE OFFICIALS.

The total numbers recorded during the triennial period are as under:—

	In-patients.	Out-patients.
1920	3,012	517
1919	3,137	519
1918	3,120	717

The chief causes of illness were: Malaria, 937; influenza. 571; respiratory, 298; dysentery, 75; rheumatism, 101; injuries, 350.

Malarial and respiratory diseases show decreases as compared with last year.

Six deaths were recorded, being a similar number to last year. The causes were: Dysentery (1), pneumonia (3), apoplexy (1), ulceration of stomach (1).

Forty-five men were invalided; the causes were: Malaria (5) rheumatism (5), debility (9), nervous affections (7), dysentery (1), influenza (2), blackwater (1), pneumonia (1), tubercle (1), eye affections (3), mastoid abscess (1), respiratory (5), digestive (2), locomotion (2).

Forty-seven native officials were invalided in the previous year.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST NATIVE OFFICIALS IN THE MOUNTAINOUS ZONE.

	1918.	1919.	1920.
Total number of officials resident	1,102	1,337	1,370
Average number resident	914	1,077	987
Total number on sick list	3,120	3,137	3,012
Total number of days on sick list	23,576	22,747	20,459
Average daily number on sick list	64·59	62·32	55·89
Percentage of sick to average number resident ...	7·06	5·78	5·66
Average number of days on sick list to each patient ...	7·55	7·25	6·79
Average sick time to each resident	21·39	17·01	14·93
Total number invalided	43	47	45
Percentage of invaliding to total residents	3·90	3·51	3·28
Total deaths	22	6	6
Percentage of deaths to total residents	1·99	·44	·43
Percentage of deaths to average number resident ...	2·41	·55	·60
Number of cases of sickness contracted away from residence	—	—	—

(*d*) GENERAL EUROPEAN POPULATION.

The influx of European settlers into the country is reflected in the increased numbers of in-patients, as shown in the returns, while the out-patients show a large drop owing probably to the advent of private medical practitioners.

The figures for the past three years are :—

	In-patients.	Out-patients
1920	560	100
1919	218	1,076
1918	246	1,028

The largest number of cases appear under the headings of malaria, 91; influenza, 36; and digestive diseases, 123.

Ninteen deaths occurred and were due to influenza (1), blackwater (1), pneumonia (1), tuberculosis (1), pyrexia (1), alcoholism (1), V.D.H. (1), broncho-pneumonia (1), emphysema (2), pleurisy (1), cirrhosis of liver (1), urinary disease (1), general injuries (1), local injuries (2), gun-shot wound (1).

From the above list it will be noted that a large number of diseases are not such as can be classed as tropical.

The births and deaths registered were :—

	Births.	Deaths.
1920	144	72
1919	128	64
1918	111	72

(e) GENERAL NATIVE POPULATION.

The numbers which presented themselves for treatment show an increase in the numbers, as compared with those of the preceding years, as is shown in the following table :—

	In-patients.	Out-patients.
1920	7,308	38,075
1919	6,938	35,196
1918	6,959	36,086

The principal causes of sickness were : Malaria, 3,439; dysentery, 551; influenza, 2,005; pneumonia, 907; respiratory diseases, 8,949; digestive diseases, 6,256; injuries, 10,803.

Of the above there are large increases in the cases of influenza, pneumonia and respiratory diseases; while the numbers of malaria and dysentery are lower than last year.

Comparison of the numbers of deaths and the death rate to admissions reveals a very gratifying drop, as is shown in the following table :—

	Deaths.	Percentages.
1920	488	6·67
1919	691	9·95
1918	1,048	15·05

The causes of death were : Pneumonia (219), plague (30), malaria (31), tuberculosis (13), dysentery (22), cerebro-spinal meningitis (18), influenza (18), small-pox (4), digestive (22), injuries (19).

II.—THE COAST ZONE.

(a.) GENERAL REMARKS.

There is a decrease in the number of the native general population which has applied for treatment, but the numbers of the other section of the community has varied very slightly from the previous years.

Dr. T. H. Massey reports that disease is more common among up-country natives, Kikuyu and Kavirondo, who live under very bad conditions, than among the Coast natives, who are possessed of facilities and comforts which are impossible for the stranger to obtain.

The lack of facilities for pathological investigation at the Coast is making itself more apparent as time goes on.

(i.) GENERAL DISEASES.

Malaria and local injuries again show the largest totals of the diseases which came under notice. Ulcers were another very common disability for which treatment was sought.

The table of admissions and deaths for the past three years is as follows :—

	In-patients.			Deaths.		
	1920.	1919.	1918.	1920.	1919.	1918.
European Officials	129	126	105	1	1	1
Native Officials	885	891	1,071	4	2	6
European General Population	180	219	173	—	—	—
Native General Population	3,649	4,305	4,762	195	198	225

(ii). COMMUNICABLE DISEASES.

MOSQUITO OR INSECT-BORNE.

Malaria.—There was an increase of over a thousand on the figures of last year and the figures approximate to those of 1918. This increase is due partly to an undue prolongation of the wet season, with an increase of cases, and partly to a change in the system of nomenclature. In 1919, only such cases as showed parasites in the blood or other unmistakable signs were classed as malaria, while in the present year this classification was not rigidly adhered to. A curious point is that the proportion of benign and subtertian infections has not, on the Coast, returned to the pre-war level as in the mountainous zone. The figures for the European Hospital, Mombasa, are :—

Benign tertian	79
Subtertian	32
Undifferentiated	2

The total numbers of malaria treated and deaths for the past three years are :—

	Admissions.	Deaths.
1920	6,103	6
1919	4,877	10
1918	5,818	4

Blackwater Fever.—Five cases with one death were reported. Two of these were Europeans, who recovered.

Filariasis.—Seven cases were treated in all, but there is the usual report of the prevalence of elephantiasis in Lamu and Pate islands.

INFECTIOUS OR EPIDEMIC.

Cerebro-spinal-meningitis.—There has been no outbreak of this disease, and only occasional cases have come under observation. The figures for the past three years are as follows :—

	Cases.	Deaths.
1920	7	6
1919	15	11
1918	18	11

Dysentery.—The incidence of dysentery was lower than in either of the two preceding years. No figures are available as to the proportion of amoebic and bacillary infections. The figures are :—

	Cases.	Deaths.
1920	241	10
1919	328	29
1918	519	46

Seven of the above cases were Europeans, but no deaths occurred in this section of the population.

Enteric.—Six cases in all were treated, of which two were Europeans. No deaths occurred. One very severe case had been inoculated only eight months previously.

Leprosy.—Five admissions and two deaths were recorded during the year.

Plague.—133 cases of plague were treated as against two in the previous year. The outbreak is fully dealt with in the report of the Chief Sanitation Officer.

Small-pox.—The actual cases which came under observation were very much less than in 1919, but there was an outbreak of small-pox in the Teita district with which, owing to shortage of staff, it was impossible to deal adequately. No figures are available for this epidemic.

The numbers which have been recorded for the past three years are :—

	Cases.	Deaths.
1920	12	1
1919	111	27
1918	36	9

Tetanus.—Six cases were treated and one died. In 1919 and 1918, the cases and deaths were respectively six cases and three deaths and two cases and one death.

Influenza.—This disease was still present during 1920, and a larger number than in 1919 presented themselves for treatment. The cases were, as a rule, mild, and only a few developed pneumonia. A distinct epidemic occurred in November at Mombasa, during which month 346 cases presented themselves at the Native Civil Hospital.

The cases in all totalled 919.

Pneumonia—Appeared to affect up-country natives who had recently arrived at the Coast more than the permanent Coast population.

The cases totalled 131, with 32 deaths.

Tuberculosis.—The figures for tuberculosis show an increase as in other parts of the country. In the report for the Native Civil Hospital, Mombasa, it is observed that the disease, as would be expected, runs a very rapid course with natives and a much more chronic one in the case of Indians.

The admissions and deaths for the past three years are as follows :—

	Cases.	Deaths.
1920	83	20
1919	51	21
1918	63	21

Of the above cases, two occurred among the European general population with no deaths.

Venereal diseases.—The steady increase in the numbers of cases is maintained, as the following table shows :—

Syphilis	438	279
Gonorrhœa	353	353

The Kavirondo are reported as being the chief sufferers from this form of disease, possibly from their not adopting the custom of circumcision.

HELMINTHIC.

The cases seeking treatment are classified as follows :—

Cestoda	T. solium ..	22	..	110	..	55
	T. saginata ..	28	..	34	..	55
Nematoda	A. lumbricoides	369	..	188	..	133
	A. duodenale ..	26	..	59	..	268
	T. dispar ..	—	..	—	..	4

(*b*) EUROPEAN OFFICIALS.

A slight increase in both in and out-patients is recorded coincident with the larger population. The figures are as follows :—

	In-patients.	Out-patients.
1920	129	243
1919	126	200
1918	105	99

Of the above, the majority of cases came under the following headings :— Malaria 73, digestive disorders 98, respiratory disorders 32, and injuries 44. One death from Bright's disease occurred.

Nine invalidings occurred as against 6 in 1919 and 10 in 1918. The causes were chronic malaria (1), anæmia (1), neurasthenia (2), insomnia (1), neuralgia (1), disease of the nose (1), asthma (1), hepatitis (1).

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST EUROPEAN OFFICIALS IN THE COAST ZONE.

	1918.	1919.	1920.
Total number of officials resident	182	192	189
Average number resident	118	105	108
Total number on sick list	105	126	129
Total number of days on sick list	843	868	998
Average daily number on sick list	2·30	2·37	2·72
Percentage of sick to average number resident... ...	1·94	2·25	2·51
Average number of days on sick list to each patient ...	8·02	6·88	7·73
Average sick time to each resident	4·63	4·52	5·27
Total number invalided	10	6	9
Percentage of invaliding to total residents	5·49	3·12	4·76
Total deaths	1	1	1
Percentage of deaths to total residents	·55	·52	·53
Percentage of deaths to average number resident ...	·84	·94	·92
Number of cases of sickness contracted away from residence	—	—	—

(*c*) NATIVE OFFICIALS.

The figures for in-patients remain at the same level as last year, while there is a slight drop in the out-patients. The records for the past three years show :—

	In-patients.	Out-patients
1920	885	1,180
1919	891	1,540
1918	1,071	995

Four deaths occurred as against two last year and six the year before. The deaths were due to malaria (2). heart disease (1), broncho-pneumonia (1).

The invalidings totalled 15 as against 11 in 1919 and 10 in 1918. The causes were blackwater (1), tuberculosis (1), debility (4), neuritis (1), neurasthenia (1), defect of vision (2), bronchitis (2), pleurisy (1), pyorrhœa (1) and tachycardia (1).

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST NATIVE OFFICIALS AT THE COAST ZONE.

	1918.	1919.	1920.
Total number of officials resident	667	683	652
Average number resident	473	401	483
Total number on sick list	1,071	911	885
Total number of days on sick list	6,111	4,931	5,943
Average daily number on sick list	16·74	13·50	16·23
Percentage of sick to average number resident... ...	3·53	3·36	3·36
Average number of days on sick list to each patient ...	5·70	5·41	6·71
Average sick time to each resident	9·16	7·21	9·11
Total number invalided	10	11	15
Percentage of invaliding to total residents	1·50	1·61	2·30
Total deaths	6	2	4
Percentage of deaths to total residents...	·90	·29	·61
Percentage of deaths to average number resident ...	1·27	·49	·82
Number of cases of sickness contracted away from residence	—	—	—

(*d*). GENERAL EUROPEAN POPULATION.

The figures form a correct estimate of the health of this class of the community, there being no private European practitioners in this part of the country.

The number treated shows a slight drop as compared with last year with regard to in-patients, although the steady increase from increase of population is maintained.

The figures for the past three years are :—

	In-patients.	Out-patients.
1920	180	249
1919	219	204
1918	173	174

Nine deaths occurred, as against seven in 1919, the causes being malaria 3, valvular disease of heart 1, enteritis 1, Addison's disease 1, broncho-pneumonia 2, Bright's disease 1.

The chief causes of illness were malaria (83), and digestive system (99). Only one case of enteric occurred and two of blackwater, all of which recovered.

Births.—The numbers registered were 14, as against 10 in 1919, and 15 in 1918.

Deaths.—The deaths registered were 11 in 1920, 7 in 1919, and 9 in 1918.

(*e*). GENERAL NATIVE POPULATION.

The figures for 1920 show a slight drop as compared with last year, this drop occurring in the total for in-patients.

The figures for the past three years are :—

	In-patients.	Out-patients
1920	3,649	24,983
1919	4,305	23,714
1918	4,762	19,494

The deaths in the various hospitals are shown as under :—

	Deaths.
1920	195
1919	198
1918	225

The chief causes of mortality were: Cerebro-spinal meningitis, 6; dysentery, 10; influenza, 13; plague, 64; pneumonia, 32; septicaemia, 6; tuberculosis, 20; anchylostomiasis, 6.

The following headings account for the greater number of cases :— Malaria (5,162), influenza (851), plague (133), digestive system (3,501), dysentery (234). skin (2,588), rheumatism (629),pneumonia (123), respiratory system (2,805), tuberculosis (79), injuries (7,037), parasites (93).

Registration of births and deaths is not compulsory.

III.—THE KENYA AND NYANZA PROVINCES.

(a.) GENERAL REMARKS.

It is in this part of the country that a beginning has been made with the scheme of medical centres in Native Reserves, to which a section of this report has been devoted. There has not been time enough for the activities of these centres to reflect themselves in the figures for the year, which remain at about the same total as for 1919. There was no outstanding abnormal condition which might have affected the general health. A considerable outbreak of plague occurred in the North Kavirondo district.

The provision of facilities for pathological research is as pressing a need for this part of the country as in the coast zone.

The long hoped for European Hospital at Kisumu is at last materializing. A house has been lent by the Uganda Railway authorities, and is being converted into a six-bedded hospital. This will undoubtedly prove a great boon, both to the European population and the medical officers who will be enabled to have patients brought into Kisumu, where they can be properly nursed and kept under observation, while the considerable time hitherto spent on travelling will be saved.

(i). GENERAL DISEASES.

The figures for the year show a slight drop all round, and it is satisfactory to note that this drop was most marked in the case of malaria and dysentery.

The table of in-patients and deaths for the past three years is as follows :—

	In-Patients.			Deaths.		
	1920.	1919.	1918.	1920.	1919.	1918.
European Officials	40	76	85	—	4	—
Native Officials	504	649	534	2	7	5
European General Population	117	86	109	3	2	2
Native General Population	3,395	3,475	4,435	145	277	628

(ii). COMMUNICABLE DISEASES.

MOSQUITO OR INSECT-BORNE.

Malaria.—The cases treated show a drop of nearly a thousand over the previous year. There are no figures as to the variety of the infection.

The totals of cases treated and deaths for the past three years are as follows :—

	Cases.	Deaths.
1920	4,906	12
1919	5,831	4
1918	4,632	15

Of the above numbers 83 were Europeans, as compared with 132 and 65 in the preceding years. No deaths occurred among Europeans.

Blackwater Fever.—Four cases only came under observation, of which three occurred among native officials and one among the general European population, the latter fatal.

INFECTIOUS OR EPIDEMIC.

Cerebro-spinal Meningitis.—Eleven cases with eight deaths were recorded, as against one case in 1919.

Dysentery.—The figures for dysentery are much lower than they have been for years. There are no statistics as to the prevalence of the amoebic and bacillary varieties.

The totals for the past three years are :—

	Cases.	Deaths.
1920	155	3
1919	584	81
1918	923	87

Three Europeans were affected. All the deaths occurred among the native general population.

Plague.—Sixty-three cases with 36 deaths came under observation, as against 57 cases with 25 deaths in 1919. The before-mentioned epidemic in North Kavirondo did not result in more cases being brought for treatment, and no data are available as to the numbers affected, which were very considerable. A small outbreak also occurred in an isolated area in South Kavirondo. The outbreaks are fully dealt with in the report of the Acting Chief Sanitation Officer.

Small-pox.—No cases at all came under observation during the year in this part of the country. This can be attributed to the favourable conditions as regards food supply, etc., as much as to the effects of vaccination in the past.

Figures for previous years are :—

	Cases.	Deaths.
1919	15	4
1918	224	62

Tetanus.—No cases were recorded.

Yaws.—There is a slight increase in the numbers for 1920. The activities of the Government units in Native Reserves will undoutedly result in a very large increase in the figures for 1921. This disease is very prevalent in the Kikuyu and South Kavirondo Reserves, and its ravages are everywhere very apparent, resulting in horrible disfigurements and crippling deformities, and it will, unless vigorously tackled, undoubtedly have a considerable effect on the labour supply of the country.

The Medical Officer, Fort-Hall, and the medical men attached to the Scotch Mission, estimate that something approaching 90 per cent. of the population in the Kikuyu Reserves are at some time or other affected by yaws, and of these about 4 per cent. develop tertiary lesions. The startling results of the use of galyl and allied drugs in this disease has fortunately resulted in a large demand among the Kikuyu for this form of treatment and given the necessary facilities and money, I see no reason why the incidence of the disease should not be considerably lessened, even if it cannot be entirely wiped out. The short time during which a Medical Officer has been stationed in South Kavirondo already shows that the natives in that district will prove as eager to obtain treatment for this scourge as are the Kikuyu. Pathological investigation is urgently required with regard to the various problems presented by yaws, and especially so in the direction of devising some test to differentiate between this disease and syphilis. The Medical Officer, Fort-Hall, reports that there are slight variations between yaws as found in East Africa and in Jamaica and South Africa.

The figures for the past three years are :—

	Cases.
1920	538
1919	515
1918	213

Influenza.—As with the other sections of the country a mild form of influenza was still prevalent.

In all 956 cases came under treatment, and nine deaths, two of whom were Europeans, occurred.

Venereal Diseases.—The figures for this show the upward tendency, which is observed all over the country. The large majority of the cases come from the Kisumu and North Kavirondo districts. Reports from the Kikuyu and Kisii areas indicate that the disease is rare in those districts.

The numbers for the past three years are :—

	1920.	1919.	1918.
Syphilis	431	298	311
Gonorrhœa	243	231	189

HELMINTHIC.

The figures recorded were :—

		1920.	1919.
Cestoda.	T. solium	80	46
	T. saginata	10	1
Nematoda.	A. lumbricoides	411	15
	A. duodenale	6	10
	O. vermicularis	3	—

(*b*) EUROPEAN OFFICIALS.

The health of European officials in the Kenya and Nyanza Provinces show a great improvement on past years. The figures for disease are considerably lower and no deaths occurred during the year.

The totals for the past three years are :—

	In-patients.	Out-patients.
1920	40	100
1919	76	100
1918	85	60

Malaria (36) and diseases of the digestive system (41) accounted for the largest number of cases.

Only one invaliding took place and was due to general debility.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST EUROPEAN OFFICIALS IN THE KENYA AND NYANZA PROVINCES.

	1918.	1919.	1920.
Total number of officials resident	123	131	159
Average number resident	74	75	92
Total number on sick list	85	76	40
Total number of days on sick list	688	688	480
Average daily number on sick list	1·88	1·88	1·31
Percentage of sick to average number resident ...	2·54	2·50	1·42
Average number of days on sick list to each patient ...	8·09	9·05	12·00
Average sick time to each resident	5·59	5·25	3·01
Total number invalided	5	6	1
Percentage of invaliding to total residents	4·06	4·58	·63
Total deaths	—	4	—
Percentage of deaths to total residents...	—	3·05	—
Percentage of deaths to average number resident ...	—	5·33	—
Number of cases of sickness contracted away from residence	—	—	—

(*c*) NATIVE OFFICIALS.

The figures for native officials show a decrease in common with the other sections of the community.

The figures for the past three years are :—

	In-patients.	Out-patients.
1920	504	498
1919	649	865
1918	534	260

The majority of the cases were classified under the following heads :— Malaria, 431; respiratory diseases, 72; digestive system, 160; injuries, 98.

Two deaths only occurred, as compared with seven last year and five in 1918; these were due to malaria and septicaemia.

There were no invalidings.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST NATIVE OFFICIALS IN THE KENYA AND NYANZA PROVINCES.

	1918.	1919.	1920.
Total number of officials resident	257	254	317
Average number resident	187	196	248
Total number on sick list	534	649	504
Total number of days on sick list	3,704	5,362	3,248
Average daily number on sick list	10·14	14·69	8·87
Percentage of sick to average number resident ...	5·42	7·49	3·57
Average number of days on sick list to each patient ..	6·93	8·26	6·44
Average sick time to each resident	14·41	21·11	10·24
Total number invalided	9	4	—
Percentage of invaliding to total residents	3·50	1·57	—
Total deaths	5	7	2
Percentage of deaths to total residents...	1·94	2·75	·63
Percentage of deaths to average number resident ...	2·67	3·57	·80
Number of cases of sickness contracted away from residence	—	—	—

(*d*) GENERAL EUROPEAN POPULATION.

The figures for 1920 total practically the same as in the preceding year, though there is an increase in the number of in-patients.

The Medical Officer, Kisumu, points out that many of the increasing number of Europeans in the Nyanza Province live under insanitary conditions, and in inadequate houses and points out that this probably has a good deal to do with the comparatively large sick rate.

The figures for the past three years are :—

	In-patients.	Out-patients.
1920	117	180
1919	86	223
1918	109	173

The principal causes of admission were: Malaria, 47; influenza, 38; digestive, 51. Three deaths were reported, one from blackwater and two from influenza.

Births registered totalled 22 in 1920, as against 10 in 1919, and 14 in 1918.

Deaths registered were 5 in 1920, as against 4 in 1919, and 3 in 1918.

(*e*) GENERAL NATIVE POPULATION.

The totals of cases treated showed a slight decrease in in-patients and a corresponding increase in out-patients.

The actual totals were :—

	In-patients.	Out-patients.
1920	3,395	31,246
1919	3,475	30,170
1918	4,436	30,937

The main causes of sickness were: Malaria, 4,392; dysentery, 142; influenza, 863; respiratory disease, 4,214; digestive system, 4,298; injuries 11,071.

The deaths recorded were:—

1920	145
1919	277
1918	628

The most frequent causes of death were: Cerebro-spinal meningitis, 8; influenza, 7; malaria, 11; plague, 36; pneumonia, 25; respiratory diseases, 12; digestive system, 7; injuries, 8.

There is no record of births and deaths.

IV.—THE DESERT ZONE.

(a.) GENERAL REMARKS.

This area of the country also showed a decrease in the totals of cases treated. Although malaria can be and is contracted everywhere, it cannot be claimed that this hot and arid region is pre-eminently unhealthy. Should the expected cession of Jubaland eventuate, the administration of the whole of this area will become entirely military, and the medical arrangements will, therefore, be modified as outlined at the beginning of this report.

(i). GENERAL DISEASES.

The total number of cases and deaths are tabulated as follows:—

	In patients.			Deaths.		
	1920.	1919.	1918.	1920.	1919.	1918.
European Officials	29	55	36	—	—	—
Native Officials	38	26	30	—	—	—
European General Population	1	2	—	—	—	—
Native General Population	1,210	2,373	1,402	24	37	56

(ii.) COMMUNICABLE DISEASES.

MOSQUITO OR INSECT-BORNE.

Malaria is reported as being extremely common at Archer's Post. There are no figures as to the incidence and variety of the infection.

The numbers of cases and deaths are:—

	Cases.	Deaths
1920	2,580	—
1919	1,998	2
1918	2,024	1

INFECTIOUS OR EPIDEMIC.

Beri-beri.—No cases were recorded during the year.

Cerebro-spinal Meningitis.—One fatal case occurred at Kismayu.

Dysentery.—The figures showed a slight increase on those of 1919, though they do not attain the same proportions as in preceding years.

The totals are :—

	Cases.	Deaths.
1920	115	3
1919	77	1
1918	152	6

Scurvy.—Only six cases with no deaths came under notice, as against 12 cases and 3 deaths in 1919—a marked drop from the total of 1918, which amounted to 203 cases with 16 deaths.

Small-pox.—Four cases occurred at Kismayu in January and 2 at Gobwen, the last of a small epidemic.

Influenza was present in this area in common with the rest of the country. A small epidemic of 63 cases with 2 deaths occurred at Kismayu.

Venereal Diseases.—The figures for this class of disease show the same increase as has been commented on elsewhere.

The totals were :—

	1920.	1919.	1918.
Syphilis ..	93 ..	71 ..	28
Gonorrhœa	172 ..	101 ..	82

HELMINTHIC.

		1920.	1919.
Cestoda.	T. solium	71 ..	59
	T. saginata	10 ..	3
Nematoda,	A. duodenale ..	2 ..	4
	A. lumbricoides ..	225 ..	47
	O. vermicularis ..	-- ..	—

(*b*) EUROPEAN OFFICIALS.

There is nothing to remark under this heading. It is satisfactory to note that no deaths and no invalidings took place during the year.

The figures are :—

	In-patients.	Out-patients.
1920	29	70
1919	55	24
1918	36	113

The chief causes of disability were : Malaria, 10; dysentery, 3; digestive diseases, 33.

In 1919 three invalidings took place and no deaths.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST EUROPEAN OFFICIALS IN THE DESERT ZONE.

	1918.	1919.	1920.
Total number of officials resident	21	27	40
Average number resident	16	17	30
Total number on sick list	36	55	28
Total number of days on sick list	291	180	158
Average daily number on sick list	·79	·49	·43
Percentage of sick to average number resident ...	4·93	2·88	1·43
Average number of days on sick list to each patient ...	8·08	3·27	5·64
Average sick time to each resident	13·86	6·66	3·95
Total number invalided	1	3	—
Percentage of invaliding to total residents	4·76	11·11	—
Total deaths	—	—	—
Percentage of deaths to total residents	—	—	—
Percentage of deaths to average number resident ...	—	—	—
Number of cases of sickness contracted away from residence	—	—	—

(*c*) NATIVE OFFICIALS.

The totals are :—

	In-patients.	Out-patients.
1920	38	62
1919	26	39
1918	30	100

The chief ailments were: Malaria, 22, and diseases of the digestive system 19.

As in 1919, no deaths or invalidings took place.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST NATIVE OFFICIALS IN THE DESERT ZONE.

	1918.	1919.	1920.
Total number of officials resident	50	51	53
Average number resident	40	41	44
Total number on sick list	30	26	38
Total number of days on sick list	172	119	403
Average daily number on sick list	·47	·32	1·10
Percentage of sick to average number resident ...	1·17	·78	2·50
Average number of days on sick list to each patient ...	5·73	4·57	10·60
Average sick time to each resident	3·44	2·33	7·60
Total number invalided	1	—	—
Percentage of invaliding to total residents	2·00	—	—
Total deaths	—		—
Percentage of deaths to total residents	—	—	—
Percentage of deaths to average number resident ...	—	—	—
Number of cases of sickness contracted away from residence	—	—	—

(*d*) GENERAL EUROPEAN POPULATION.

Only 1 in-patient and 12 out-patients are recorded.

Births registered number 3.

Deaths registered, *nil.*

(*e*) GENERAL NATIVE POPULATION.

The totals under treatment were :—

	In-patients.	Out-patients.
1920	1,210	13,176
1919	1,373	6,434
1918	1,402	8,552

There were 24 deaths, as against 37 in 1919, and 56 in 1918.

The causes of death were : Cerebro-spinal meningitis (1) dysentery (3), influenza (2), pneumonia (4), septicaemia (1), secondary syphilis (1), tetanus (1), tuberculosis (4), anaemia (2), paralysis (1), pleurisy (1), liver abscess (1), stricture (1), general injury (1).

III.—SANITATION.

REPORT BY DR. A. R. PATERSON, ACTING CHIEF SANITATION OFFICER, COLONY & PROTECTORATE OF KENYA.

(i.) ADMINISTRATION.

1. The sanctioned personnel of the Sanitation Division at the commencement of the year 1920 and the personnel actually entertained were as follows :—

	Sanctioned.	Actually Entertained.
Principal Sanitation Officer	1	1
Medical Officer of Health (Senior Grade)	1	–
Medical Officers of Health	12	3
Sanitary Inspectors	14	14
Nurses	2	2
Assistant Surgeons	6	1
Sub-Assistant Surgeons	7	4
Chief Vaccinator	1	1
Vaccinators	56	56
Clerk (European)	1	1
Clerks (Asiatic)	10	10

The following additional posts were sanctioned during the year, but no appointments were made except in the last instance :—

Sanitation Officers	2
Senior Medical Officers of Health	3
Superintendent of Infectious Diseases Hospital	1

2. Appointments during the year :—

3 Medical Officers of Health.
1 Superintendent of Infectious Diseases Hospital.

3. Invalided during the year :—

Nil.

4. Proceeded on leave during the year :—

1 Principal Sanitation Officer.
1 Sanitary Inspector.

5. Returned from leave during the year :—

5 Sanitary Inspectors.

6. Retirements during the year :—

1 Principal Sanitation Officer.

7. Deaths during the year :—

Nil.

8. Dr. W. J. Radford, Principal Sanitation Officer, was in charge of the division till the 1st May when he proceeded on leave. Thereafter the duties were carried out by the Deputy Principal Medical Officer, Dr. C. L. Chevallier, till 30th November. From 1st to 31st December, Dr. A. R. Paterson acted as Chief Sanitation Officer.

9. The designation of the officer in charge of the division was altered from Principal Sanitation Officer to Chief Sanitation Officer.

(ii). LEGISLATION DURING 1920, AFFECTING THE MEDICAL DEPARTMENT AND PUBLIC HEALTH.

Under the Customs Ordinance.

Prohibition of importation of shaving brushes from Japan.

Under the Infectious Diseases Ordinance.

New Rules *re* service of notices gazetted 30/1/20.
Cancellation of application of Rules to Kyambu 22/1/20.
Rules applied to Ruaraka 27/1/20.
Cancellation of application 13/3/20.
Cancellation of application to Mombasa 19/11/20

Under the Town Planning Ordinance.

Procedure regulations.

Under the Township Fees and Conservancy Ordinance.

Order affecting conservancy fees at Kisumu.

Under the Townships Ordinance.

M'Bagathi declared a Township.
Kakamega declared a Township.
Nanyuki declared a Township.

Various rules were applied to different Townships, but no new rules of importance were gazetted.

(iii.) PREVENTIVE MEASURES.

MOSQUITO AND INSECT-BORNE DISEASES.

MALARIA.

RECORDED CASES (GOVERNMENT HOSPITALS AND DISPENSARIES).

Year.	Cases.
1916	18,238
1917	17,968
1918	21,194
1919	20,778
1920	18,195

RECORDED DEATHS (GOVERNMENT HOSPITALS AND DISPENSARIES).

Year.	Deaths.
1916	33
1917	38
1918	42
1919	42
1920	49

The above figures represent only such cases as have been treated at Hospitals and Dispensaries. In the majority of instances the diagnosis has not been confirmed microscopically. They, therefore, provide no basis on which to found any conclusion, either as to the incidence of the disease or its relative intensity compared with past years. It is probable that they include a very large number of cases of illness of greater or less severity due to causes other than malaria.

Speaking generally it may be said that though malaria occurs throughout the Colony and Protectorate, it is only in the Coastal Belt, in certain parts of the Nyanza Province bordering on the lake shore, and in the valleys of the larger rivers that it is a serious factor affecting the prosperity and development of the native population.

That the disease can and, to a certain extent, does exist in the Highlands must not, however, be overlooked. At present it undoubtedly occasions a certain amount of disability not only among natives, but among Europeans. There is no evidence that the incidence in the Highlands is increasing, though with the opening up of new country and the introduction of native labour from malarious districts, such increase is always possible.

ANTI-MALARIAL MEASURES.

At most stations where malaria has in the past proved to be a serious menace, houses are as far as possible rendered mosquito proof, and a free issue of nets is made to European and Asiatic Government Officials, and in some instances to Africans. Routine bush clearing, grass cutting, ditch clearing, filling and a certain amount of oiling are carried out. That further and more extensive measures should be carried out is undoubted. In order, however, that these measures may be carried out economically and soundly, in order that money should not be expended on unnecessary works and in order that new Townships, farming areas and trade routes may not become malarious, the preliminary step on which all anti-malarial measures should be based has still to be taken.

No malaria mosquito survey of the country has yet been made. But little information is available as to which species prevail in different areas, and none at all as to which may act as carriers under the very varying conditions of climate and altitude which prevail. For such information as we do possess we are indebted to the courtesy of the Chief Entomologist of the Agricultural Department. This officer is not, however, provided with the staff necessary to carry out the special medical entomological researches which are required. The appointment of an entomologist to undertake the investigation of the species and habits of East African mosquitoes, ticks, lice, fleas, etc., etc., from the medical and sanitary point of view is long overdue and urgently necessary.

BLACKWATER FEVER.

Thirteen cases with four deaths are recorded as against 47 cases with 21 deaths in 1919.

TRYPANOSOMIASIS.

This disease would still appear to occur sporadically on the shore of the Kavirondo Gulf of the Victoria Nyanza. Nine cases were reported during the year, and a diagnosis of sleeping sickness was made on clinical grounds. None of the cases were confirmed microscopically. It is hoped that it will be possible during 1921 to make a survey of the lake shore areas with regard to the prevalence of this disease.

RELAPSING FEVER.

Thirty-six cases were treated in Hospital. One death occurred.

The incidence was practically limited to the Ukamba Province.

EPIDEMIC DISEASES.

PLAGUE.

Nyanza Province.

This Province consists of five districts. In one of these—South Kavirondo —very limited and sporadic outbreaks of plague have occurred at intervals since 1912. Previous to that date there is no record. Two small outbreaks with a total of 17 cases occurred during 1920.

In the Kisumu District, where plague has been endemic for many years, a large number of cases occurred during 1920.

In Kisumu Township itself 41 cases with 28 deaths occurred. Of these cases 19 apparently acquired the infection within the Township. The remainder were imported cases.

The case mortality among the inoculated and uninoculated is recorded as follows :—

	Total cases.	Inoculated.	Not Inoculated.	Deaths among inoculated.	Case mortality per cent.	Deaths among not inoculated.	Case mortality per cent.
Bubonic	22	13	9	4	30·7	7	77.7
Pneumonic	19	5	14	3	60	14	100

The population of the town and, to a certain extent of the surrounding district, all deck passengers travelling by the lake steamers, and all labour proceeding down line were inoculated to the number of 51,284. 12,834 rats were trapped or killed within the Township area.

In the North Kavirondo district as now constituted, there is no record of plague previous to 1919, though as no Medical Officer had up till that time been permanently stationed there, it is possible that localised outbreaks of the disease may have occurred. In May of that year, however, plague was recognised at Mumias and in some of the neighbouring locations.

In April, 1920, outbreaks were again reported in North Kavirondo, and from then on till the end of the year a large number of cases continued to occur. As no Medical Officer was permanently stationed in the district till the latter half of the year, it is impossible accurately to estimate the mortality. That at least some 1,500 deaths occurred there would seem to be no doubt. Prophylactic inoculation was made available through the district, and was eagerly taken advantage of by the population, 38,522 inoculations being performed during the year.

Ukamba Province.

Kyambu District.—This district consists partly of farms in European occupation and partly of Kikuyu native reserve. The farming area marches with Nairobi, the reserve is more distant and extends on to the slopes of the Aberdare Range.

Cases of plague were first reported among native labourers on the European farms in April, but investigation revealed the concurrent existence of the disease in the reserve. What the history of the disease in this district may have been is difficult to determine. It is not impossible that it may have been endemic in the hills for years, and that previous outbreaks in Nairobi may, in some instances, have been due to immigration of rats from this source and not to importation by rail.

Whether this is so or not, there is little doubt but that the disease is now enzootic in this area, and that the human cases which occurred in Nairobi from November onwards represented the results of the spread of the epizootic into the town.

Throughout the year infected rats and consequent human cases occurred on the farms and in the reserve at many and widely separated points. The number of cases among native labour on farms was small (22). The number occurring in the reserve was probably considerable.

Nairobi.—In 1918 no cases of plague occurred in Nairobi. In 1919 two isolated cases occurred, one in September and one in December. In August, 1920, an unknown native was found dead of the disease within the municipal area, but no further cases occurred until November, from which time till the end of the year 25 indigenous cases occurred, and infected rats were found at widely separated points throughout the town.

In addition twenty-one cases were admitted to the Infectious Diseases Hospital from points out with the Township in the direction of Kyambu.

The prevention of periodical epizootics in Nairobi will remain difficult or impossible so long as plague remains enzootic in the neighbouring Kikuyu district.

The prevention of any considerable accompanying epidemic is on the other hand simple. Almost entirely it is a matter of housing. For the many casual African labourers, rickshaw boys, etc., who at present find employment in the town, no adequate housing exists, nor has any satisfactory provision yet been made for many who are in regular employment. The same holds good to an extent for the poorer class of Asiatic.

With the provision of adequate housing for these classes, the improvement of existing housing, the removal of such grass huts as at present exist within the Township and the prohibition of the erection of further grass huts, human cases of plague will become few and far between. There is some reason to hope that considerable progress may be made in this district during the coming year.

It is of interest to note that only two cases occurred in the Old Indian Bazaar in contra-distinction to the high incidence which used to prevail in that area.

This result has been achieved by gradually building the rat out of existence. Formerly the bazaar buildings had wooden floors or rubble plinths floated with cement. To-day they stand on 4 or 6 inches of concrete and rat infestation does not occur to any extent. Similarly in the large native quarter of Pangani, which is inhabited by the better class and better paid natives, and consists of wattle and daub houses without any plinths or raised floors whatsoever, only two cases occurred.

Plague in Nairobi is, as far as we know, associated chiefly with the black rat, Rattus rattus kijabius.

Two nesting places particularly attract him :—

(1) Grass roofs.

(2) Enclosed spaces under wooden floors or spaces in the stonework of loose raised rubble plinths.

If, therefore, there are neither such roofs nor such floors or plinths, rat infestation is unlikely in a dwelling house. As the black rat is no burrower in the ground, but on the other hand much attracted by the natural spaces in a badly constructed plinth, it should be realised that from the point of view of plague prevention a hard beaten earth floor, level with the ground, is much to be preferred to an improperly constructed plinth.

Pangani village was originally started by Swahilis from the coast, and the type of house—a large square wattle and daub structure—is a copy of the Swahili home as built in the town of Mombasa. There is one difference, the house in Mombasa is roofed with palm leaves (Makuti). There are no palm leaves in Nairobi, and resort has therefore been had either to corrugated iron or most ingeniously to old kerosene or petrol tins flattened out. To this substitution of iron for Makuti and to the entire absence of a plinth is probably attributable, in considerable part at least, the remarkable immunity from plague which this village has enjoyed as compared with similar areas in Mombasa.

During the year 33,000 prophylactic inoculations were performed in Nairobi and the surrounding district. 7,859 rats were trapped within the municipal area.

Mombasa.—After an absence of nearly two years plague was again present in Mombasa in 1920. The history of the disease on the Island since it was first definitely diagnosed on August 28th, 1912. is shown in the following table :—

Year.	Cases.	Inoculations performed.	Rats trapped.	Rainfall.
1912	27	—	1,724	37·58
1913	199	41,000	1,656	41·59
1914	2	—	10,044	33·27
1915	—	—	19,000	57·54
1916	—	—	11,734	42·37
1917	101	39,587	13,419	40·83
1918	3	—	7,936	35·30
1919	3	—	5,811	39·33
1920	408	43,030	4,543	55·18

MONTHLY INCIDENCE OF CASES OF PLAGUE, MOMBASA,

1912—1920.

Year.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
January	—	—	—	—	—	—	3	—	4
February	—	6	—	—	—	—	—	—	14
March	—	1	—	—	—	—	—	—	8
April	—	19	—	—	—	1	—	—	9
May	—	14	—	—	—	8	—	—	50
June	—	43	—	—	—	4	—	—	62
July	—	51	—	—	—	11	—	—	50
August	—	42	—	—	—	29	—	—	72
September	5	17	—	—	—	16	—	—	98
October	—	6	—	—	—	14	—	—	40
November	12	—	—	—	—	9	—	2	-
December	10	—	—	—	—	9	—	1	1
TOTAL	27	199	—	—	—	101	3	3	408

History of the outbreak.—The first case occurred in November, 1919, in a house over a godown in the old town near the Customs. The godown was turned out and infected rats were found. Almost immediately afterwards infected rats were found in other parts of the Island at points over a mile distant from the focus first discovered.

As is usual there was reason to believe that the above was not the first case, and the subsequent course of the epidemic suggests that even at this early date, foci of rat infection existed at several widely separated points on the Island.

It is greatly to be regretted that advantage could not be taken of the outbreak to increase our knowledge of the epidemiology of the disease in East Africa. No bacteriologist or entomologist was available at Mombasa, and owing to the very depleted condition of the medical staff of the Colony at the time, it was not till August that even one additional Medical Officer was available to assist the Medical Officer of Health.

The total number of cases recorded was 408.

Of these 282 are returned as bubonic.
123 are returned as pneumonic.
3 are returned as septicaemic.

The total number of deaths was 366.

The case mortality for bubonic cases was 87 per cent.
,, ,, pneumonic cases was 95 per cent.
,, ,, septicaemic cases was 100 per cent.

With regard to the cases returned as "pneumonic" plague it is probable that but few suffered from an inspiration pneumonia, as of 774 contacts who were kept under observation, only two developed the disease. Both were from houses where bubonic cases only had occurred; one developed bubonic plague, the other "pneumonic." The Medical Officer of Health is inclined to look on these "pneumonias" as phenomena accompanying a general infection, and to regard most as having most probably been infected in the ordinary manner through fleas.

Experience in other parts of the country would suggest that in East Africa this is probably the rule, and that true pneumonic plague contracted by inspiration but rarely occurs. That a notable exception to this rule apparently occurred in 1917 in Nairobi must not, however, be forgotten.

The only noteworthy point with regard to race incidence is that of the 408 cases no less than 152 occurred among up-country immigrants working in Mombasa. This up-country casual labour—mostly Kikuyu and Kavirondo —like similar labour in Nairobi, can find no satisfactory housing at a price which it can afford to pay. Like the rat it has to find accommodation where best it can, and not unsimilar causes force both to find accommodation where they are in close association with one another.

The conditions which are arising in East Africa as a result of agricultural folk being attracted or forced into the towns by economic development are very similar to those which arose in English towns during the earlier part of the last century and in the greater seaports of the East at about the same time.

The mistakes which were then made are now realised, but the prevention of their repetition is difficult; unless, however, far-sighted provision can be made within the next few years, Mombasa is not unlikely to become but another of the great slums of the East, in equal measure as it becomes a great port, and the possibility of preventing outbreaks of epidemic disease therein will become increasingly remote.

Prophylactic Measures, etc.—Action with regard to individual premises consisted in their temporary vacation, deratting and disinfection, and was on the whole successful, as in only two cases was there a recurrence in any house which had been dealt with.

Action with regard to rat destruction generally was singularly unsuccessful. In all, the rats trapped amounted only to 4,543, a number which can have had no effect on the course of the epidemic. Trapping has never been successful in Mombasa and particularly has this been the case during outbreaks of plague. The association between rats and plague has never been fully appreciated by the inhabitants and no assistance is received from them in this matter.

The general construction of the town—old ruinous coral buildings on narrow streets, or wattle and daube thatched huts—is such as to render effective rat destruction extremely difficult. To prevent the immigration of infected rats from one area to another is impossible. In the part of the Island, however, towards Kilindini, which is largely occupied by railway employees, the wholesale evacuation and destruction of a large number of insanitary grass huts was possible and the sudden cessation of cases, which by October were chiefly occurring in that area, was coincident with this measure.

The labourers who had occupied these huts were provided with temporary accommodation in the neighbourhood. In these temporary structures they are still housed. It is essential, if the railway area is not again to be seriously affected, that permanent and satisfactory housing should be erected for this labour as soon as possible. Considerable loss of life from plague has now occurred in Kilindini on two occasions, *i.e.*, in 1913 and in 1919. On both occasions also considerable expense had to be incurred by destroying insanitary housing and replacing it in haste by new temporary housing which shortly becomes as rat ridden as the old. The provision of satisfactory and permanent housing for these people has been urged in order that another repetition of the above costly expedient may not be necessary.

Inoculation.—Both the African and the Indian population of the Island have great confidence in prophylactic inoculation. The total population is probably about 30,000, and during the course of the epidemic over 43,000 inoculations were performed. No figures are available as to the incidence or recovery rates among the inoculated and uninoculated, but it is of some interest to note that of the Agha Khan Khoja community, which numbers about 1,500, only one member developed plague. Practically the whole community was inoculated once and the greater number twice. The member who developed plague had not been inoculated.

Spread of the disease to the mainland and elsewhere.—Five cases only occurred on the mainland in the vicinity of the Island. All had acquired the infection in Mombasa and in no instance did any further cases occur.

No evidence exists that there was any extension of the disease by rats being carried either by rail, ship or dhow. Such outbreaks as occurred up-country are otherwise accounted for, and the seaports of East Africa, Tanganyika and Zanzibar remained free from infection.

Origin of the outbreak.—Three possibilities present themselves : (1) introduction of infected rats by rail from up-country, (2) introduction of infected rats by sea either by steamers or dhows, (3) the disease may not have been absent from the Island during 1918 and 1919 but may have continued present among the rodents during these years. There are, however, no data which would assist one in arriving at a definite conclusion.

Reasons for the larger number of cases in 1920 *than in* 1917 *and* 1913.—(1) Though Mombasa is to-day much better scavenged and generally very much cleaner than in 1913, it cannot be said that, on the whole, people live under more hygienic conditions. The population has probably increased and this increase is largely due to the immigration of Shihiri Arabs from the coast of Hadramont and Kavirondo, Kikuyu and other natives from up-country.

Owing to the greatly increased cost of building even wattle and daub makuti roofed huts and the rise in land values this population has been housed, not by the building of new dwellings, but by the sub-division of old ones, and overcrowding has thereby been considerably increased.

(2) Owing to the lack of shipping facilities the godowns and stores of Mombasa were, during 1920, crowded with stocks of foods of various kinds, and particularly with hides, these goods are stocked in many curious corners and many stores have not been turned out for months. There is also some reason to believe that 1920 was not only in Mombasa but in other parts of the country, a "rat year."

(3) *Meteorological conditions.*—Records of relative humidity with regard to past years are not available. The rainfall of 1920 was, however, considerably in excess of previous years, being 55·1 inches, as compared with an average of 40·9 for the past eight years.

General Review.—The present position is as follows :—

NYANZA PROVINCE.

Plague is endemic in the Kisumu and North Kavirondo districts of the Nyanza province and accounts yearly for a very considerable mortality in these areas. Its appearance in the North Kavirondo district is comparatively recent and represents an extension from the Kisumu district.

The more northerly and eastern portions of the North Kavirondo district have not yet been affected, but an extension in these directions is to be expected if no radical action is taken in the areas at present infected. Plague is also apparently endemic in certain areas of the South Kavirondo district, but has hitherto not assumed an epidemic form in that locality. The reasons why it should not have done so are not evident.

On account of the endemicity of plague in the Kisumu district the township of Kisumu, which is a terminus of the Uganda Railway and a chief port of call for the Lake steamers is liable yearly to become infected, and the transportation of infected rats by ship or rail to other areas is always to be feared. Outbreaks at Nairobi and Mombasa and at other lake ports may occur from rats being carried in this manner.

The presence of plague in the above districts is therefore not only a cause of considerable loss of life, but is a menace to the whole country and to the neighbouring territory of Tanganyika.

The districts above mentioned are very thickly populated and the inhabitants are chiefly occupied in the production of grain. The only type of house is a round wattle and daub hut with a grass roof and the grain stores are of similar construction.

There is some reason to believe that the disease in these districts is only associated with a variety of the black rat (Rattus rattus kijabius) and that extensions of the disease to a new area are preceded by the invasion of that area by this rodent.

Until comparatively recently it had not been possible to post more than two Medical Officers to the Nyanza Province. Of these officers one only was concerned with sanitary practice and his energies were sufficiently occupied with the sanitation of the town of Kisumu and the supervision of routine measures for the prevention of the spread of the infection by rail or ship. The eradication of the disease from the Reserves or even its control therein seemed hopeless of achievement.

Within the past year, however, it has been possible to increase the number of Medical Officers available for this Province to six, and these officers have found that it is apparently possible to turn some part at least of the energies of the whole of the native population to rat-catching, and already very large numbers have been accounted for. No payments are made, but the people are encouraged to carry out rat hunts in their villages and to

bring in the rats, or in certain instances the tails, to certain specified places within their locations. The Kavirondo appreciate the association of plague with rats; they also appreciate the amount of loss which they suffer in grain destroyed. The extent to which the disease can be controlled and the possibility of its ultimate extinction depend, of course, on the extent to which the campaign can be maintained over a period of years. The response to such propaganda as it has so far been possible to carry out has been exceedingly satisfactory. In very large measure this result has been achieved by the whole hearted and energetic support which the campaign is receiving from the administration officers in charge of the districts.

In order also that the possibility of rodents other than the black rat being involved in the transmission of the disease may not be ovelooked a complete survey of the small mammals and their ectoparasites is being carried out in the district—North Kavirondo—where extension of the disease has most recently taken place, and, if possible, this survey will be extended to include the other endemic areas of East Africa.

Ukamba Province.

In certain parts of the Kyambu district plague would now appear to be endemic and outbreaks in Nairobi would appear to be due to this source. A trial of the methods of rat destruction which have shown promise in Nyanza is about to be made in such parts of the district as are native reserve, and in the European farming area a certain amount of propaganda has been commenced.

A survey of the small mammals and considerable further investigation of the conditions which affect the occurrence of the disease in this area is, however, required.

Seyidie Province.

The Teita district of this Province has long been suspect as an endemic area. From time to time in recent years deaths from a disease which may possibly have been plague have been reported. During the war, however, it was never possible to investigate these reports. It is hoped that it may be possible to carry out some investigations in this district during 1921.

Mombasa.—It is unlikely that the disease is endemic in the Island. It is most probably always introduced either by rail from up-country or by sea from India, the Arabian Coast or the Persian Gulf. Routine measures are always in operation at Kisumu, and when occasion demands also at Nairobi, to prevent the carriage of infected rats from these places to the Coast. Such measures can, however, never be more than partial—rats do not confine themselves to grain waggons—and the elimination of danger of infection from Nairobi and Kisumu will not be complete till the disease has been eliminated or radically checked in the districts of the Nyanza Province and the Kyambu district of the Ukamba Province. The possibility of infection from the Teita district through Voi has still to be investigated.

To establish any further procedure than is already in operation to prevent importation by sea would be so expensive and restrictive of trade that it does not at present seem justifiable, and this source of infection must, therefore, continue to be reckoned with. It remains to be considered whether the rat population of Mombasa can be kept so reduced as to render the importation of infected rats a matter of small importance. Hitherto routine rat destruction measures in Mombasa have met with practically no success. The numbers

which have been trapped have not been such as could possibly have affected the rat population of the town to any appreciable degree, and the structure of the town is such as to make it unlikely that either routine poisoning or trapping can be carried out so as to achieve practical results at other than an exorbitant cost.

Unfortunately, these measures have never received the support of the inhabitants. In fact, the possibility of an infected rat being traced to any particular premises leads not infrequently to the liberation of any rats which may have entered the traps. It would seem, therefore, that until such time as sanitary buildings have replaced the present crazily unstable collection of old coral houses, till corrugated iron has replaced the makuti roofs of the huts, and till the people themselves have realised the connection between the rat and plague it will be necessary to rely on trapping, and more specially poisoning, carried out not as a routine measure but in a very intensive manner throughout the Island immediately rat or human plague may make its appearance thereon.

To sum up, the towns of East Africa are either very old or very new, and both classes are of such construction as to make rat infestation difficult of prevention. If, however, provision can now be made to cope with the influx of population which will undoubtedly take place, gradually they will become more sanitary and plague therein will gradually cease to occur in epidemic form. For some time, however, they will continue to be liable to infection from the reserves, and it is to these latter areas that attention should be especially directed. Fortunately, it is possible to do in some of these native reserves what can be done neither in India nor in England.

The up-country native populations are comparatively untrammelled by prejudice, they readily realise the immense amount of damage which the rat does, not only as a carrier of disease, but as a destroyer of food supplies, and it is a comparatively easy matter to interest the whole population of a district in his destruction.

SMALL-POX.

The Nyanza Province remained free from this disease throughout the year.

In Nairobi 17 cases with 3 deaths occurred. Of these, 11 cases resulted from a case which occurred in an Indian passenger from Bombay, which developed after arrival in this country and was concealed.

In Mombasa, 11 cases were treated. Of these, three were removed from ships arriving from Bombay.

The only serious outbreak during the year occurred on the coastal belt in the Vanga district of the Seyidie Province.

139,753 vaccinations are reported as having been performed during the year.

The numbers for the past five years, are as follows :—

Year.	1916.	1917.	1918.	1919.	1920.
Vaccination ...	977,055	297,303	428,097	263,829	139,753

A detailed statement with regard to the year 1920 is attached. Of the larger numbers mentioned therein those given for Kisumu and Kakamega are accurate, as they represent the vaccination of native labourers at the Health Office and hospital prior to their leaving the Province.

Of the remaining figures most of the larger ones are probably over estimations. They represent returns made by native vaccinators and are not reliable.

The results of the vaccinations performed are largely unknown as it has not hitherto been possible to establish any system by which vaccinations performed in the reserves can subsequntly be inspected and verified, and at Kisumu the labour vaccinated does not remain more than 24 hours before proceeding to its destination. There is, however, reason to believe that a very considerable percentage of failures occurs. The difficulties to be overcome in carrying out vaccination over a large area in the tropics are considerable. The initial production of a satisfactory lymph and the maintenance of a supply present many difficulties. The lymph may suffer considerable loss of potency during transport to and storage at the station where it is to be used, and lastly the technique of the native vaccinator usually leaves much to be desired.

Hitherto the small number of Medical Officers has rendered satisfactory supervision impossible. It is doubtful whether the attempt to perform large numbers of vaccinations by unsatisfactory means is worth while. Two accidents may happen; one positive and one negative. Sore arms may occur through faulty technique, or the vaccinations may not be successful. Neither of these events popularise the procedure.

The Bacteriologist is at present giving great attention to the question of the production of a satisfactory lymph. Experiments with regard to more satisfactory methods of transport are being carried out, and it is hoped that with the additional provision of medical officers which is now available, it may be possible in 1921 to procure a higher proportion of success, though the actual number of operations which may be performed will probably be considerably less than in the past.

STATEMENT SHOWING THE PLACES AND NUMBER OF VACCINATIONS PERFORMED AT EACH DURING THE YEAR 1920.

Stations.	Vaccinations.			
	Number.	Failed.	Successful.	Unknown.
Nairobi	32,775	309	677	31,789
Mombasa	27,192	107	597	26,488
Kisumu	28,582	—	—	28,582
Lamu	3,415	732	1,248	1,435
Machakos	1,935	—	—	1,935
Kyambu	1,077	37	26	1,014
Makindu	1,772	—	—	1,772
Kitui	838	107	648	83
Nakuru	811	1	—	810
Naivasha	114	38	37	39
Eldama Ravine	1,529	—	60	1,469
Kacheliba	20	3	13	4
Fort Hall	5,449	—	—	5,449
Nyeri	151	—	3	148
Embu	18,854	—	—	18,854
Meru	2,064	588	1,474	2
Kericho	4,793	53	63	4,677
Nandi	1,166	114	550	502
Eldoret	81	—	70	11
Kismayu	1,044	356	621	67
Cobwen	1,117	133	409	575
Kakamega	4,974	361	29	4,584
Total	139,753	2,939	6,525	130,289

Certain of the above figures are compiled from returns given by Native Vaccinators. They are not necessarily accurate and probably are over estimations.

ENTERIC.

Twenty cases occurred among Europeans. There were no deaths. Of these cases only seven occurred in Nairobi, as compared with 35 in 1919.

Eight cases with no deaths are recorded as occurring among the native population.

DYSENTERY.

Cases and deaths for the past five years are as follows :—

1916.		1917.		1918.		1919.		1920.	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
3,321	191	2,529	160	4,401	320	2,626	274	1,151	49

There has been a notable diminution in the incidence of this disease, especially in Nairobi.

CEREBRO-SPINAL MENINGITIS.

This disease only occurred sporadically throughout the year. The number of cases and deaths recorded being respectively 60 and 33.

CHICKEN-POX.

878 cases were recorded.

MEASLES.

19 cases with no deaths were recorded.

MUMPS.

188 cases occurred.

ANTHRAX.

29 cases with 2 deaths are recorded.

INFLUENZA.

4,797 cases with 43 deaths are reported, as compared with 2,278 cases and 111 deaths in 1919.

TYPHUS (?).

A small number of cases of a disease clinically resembling typhus fever occurred during the year. The incidence was confined to Europeans living in the highlands, and though a careful watch has been kept in all hospitals, no case in any way resembling typhus has yet been observed amoug the native population.

The class of European contracting the disease has not been that with which one is accustomed to associate typhus in Europe, a fact which suggests that the louse may not be concerned in the transmission of the infection. Lice are, however, not uncommon parasites of natives in all parts of the country, and will become more common as the wearing of clothes becomes more popular with the native peoples. That they are responsible for the transmission of any infection in this country has not so far been demonstrated.

ANKYLOSTOMIASIS.

60 cases and 16 deaths are recorded, as compared with 212 cases and 48 deaths in 1919.

LEPROSY.

25 cases came to the notice of the department during the year.

TETANUS.

14 cases with 5 deaths are recorded.

(iv.) GENERAL MEASURES.

SEWAGE DISPOSAL AND SCAVENGING.

No major schemes for water borne disposal of sewage are yet in operation, and with the exception of a few private septic tank installations, nightsoil is dealt with by the single bucket system.

In Kisumu the administration is responsible for conservancy, which is there executed in a very satisfactory manner.

In Nairobi the municipality is responsible. They have recently considerably increased their available staff and considerable improvement is becoming evident though much still remains to be done.

In Mombasa the execution of conservancy was transferred from the Administration to the Health Office during the year, and very considerable improvements have been effected.

WATER SUPPLIES.

The most pressing problems are undoubtedly the increase and treatment of the Nairobi supply and the provision of a more satisfactory supply for Kisumu.

An attempt has been made to deal with the former by means of bleaching powder, but the result has not been to produce a water which can be guaranteed. Filtration and subsequent sterilization by means of a liquid chlorine apparatus will be necessary before any satisfactory result can be achieved.

HOUSING.

In the three larger towns and in most of the district stations the need for additional and improved housing is as pressing and as difficult to meet

as in other countries. Particularly urgent is the question of making adequate provision for the native populations of Nairobi and Mombasa. In both towns the problem is receiving consideration, but it is not clear that a satisfactory solution has been arrived at in either case.

The housing of labour on farms and estates also presents many difficulties, and though it is gradually being realised by some of the larger concerns that to reproduce the conditions of the reserves does not necessarily represent the achievement of a sanitary ideal, and that to improve on these conditions is economically sound, the general conditions in many instances still leave much to be desired. The matter is now, however, receiving attention from the Labour Inspection Division of the Departments of Native Affairs and considerable improvement may be expected.

(v.) CONDITION OF TRADES AND FACTORIES.

PUBLIC MARKETS.

Mombasa	2
Nairobi	2
Kisumu	1

The large Mackinnon market at Mombasa is still unfortunately unfinished.

The native market at Nairobi can never have been adequate and is not now worth reconstruction. Its replacement by a sanitary structure is urgently required.

SLAUGHTER HOUSES.

Mombasa	1
Nairobi	2
Kisumu	2

Considerable improvement of the conditions under which slaughtering is carried out at Mombasa has been effected, but a satisfactory slaughter-house should be provided so soon as funds permit.

At Nairobi the services of a Government Veterinary Officer are now at the disposal of the Municipality. Improved accommodation is, however, required.

ANIMALS SLAUGHTERED AT NAIROBI SLAUGHTER HOUSE, 1920.

	Oxen.	Sheep.	Pigs.	Game.
	195	22,831	542	238
Condemned	13	1,263	2	—

ANIMALS SLAUGHTERED FOR NAIROBI AT M'BAGATHI SLAUGHTER HOUSE, 1920.

	Oxen.	Sheep.	Pigs.
	7,972	5	1
Condemned	59	—	1

AERATED WATER AND ICE FACTORIES.

These receive constant supervision and the standard maintained has, on the whole, been satisfactory.

DAIRIES AND MILK SUPPLY.

The regulation of this traffic presents very great difficulty. Adulteration can be kept in check by frequent prosecutions, but improvement of methods of producton is likely to be exceedingly slow. The appointment of a Veterinary Officer to Nairobi municipality as mentioned above has made some control possible and the promulgation of legislation is receiving consideration. The need at present, however, is for educational rather than legislative measures.

SHIPPING.

Bills of Health Issued.

Port.	1918.		1919.		1920.	
	Steamers.	Dhows.	Steamers.	Dhows.	Steamers.	Dhows.
Mombasa	99	495	178	480	264	311
Lamu	5	117	1	203	—	105
Kismayu	17	155	14	104	48	140

Three steamers which arrived at Mombasa infected with small-pox were sent to the sanitary station at Zanzibar for disinfection and quarantine of deck passengers.

IV.—METEOROLOGY.

2. The Department of Agriculture compiles statistics concerning rainfall and temperature at various places in the Colony, and has furnished the figures given in the tables embodied in this report.

No other data can be given.

TABLES SHOWING MEAN ANNUAL RAINFALL AT VARIOUS POINTS IN THE DIFFERENT AREAS FOR THE YEAR 1920.

Coast Area.

Station.	1920.
Malindi	52·53
Mombasa	55·28
Mazeras	49·41
Mackinnon Road	25·34
Voi	18·29
Taveta	Closed.

Mountainous Area.

Masongaleni	15·20
Makindu	44·78
Kiu (Station)	22·11
Athi River	28·83
Nairobi Laboratory	47·16
Kabete Farm (near Nairobi)	51·75
Naivasha (Station)	21·83
Nakuru	34·23
Molo	58·58
Eldama Ravine	45 66

Nyanza and Kenya Province.

Lumbwa Station	32·71
Muhoroni (Station)	45·92
Kisumu	41·65
Mumias (Kakamega)	87·75
Karungu	Station closed.
Kericho	66·06
Nandi	63·25
Fort Hall	46·72
Nyeri	50·46
West Kenya	32·57

Desert Area.

Kismayu	9·79
Gosha Alexandra	24·25
Mfudu	Station closed.

V.—HOSPITALS AND DISPENSARIES.

1.—EUROPEAN HOSPITALS.

During the year, at the latter end of August, a new European Hospital at Eldoret was opened with accommodation for seven beds. The building is built of brick and is raised on piles, and is situated in a good position on a hill overlooking the town and forms part of a scheme for a large general hospital. One serious fault in construction is noticeable, and that is that the partitions between the walls are of match boarding only and this, with the wooden floors, renders the building very noisy and every sound from one room can be heard in every other. While building a hospital it was apparently forgotten that quarters for a nursing staff were necessary, with the result that the two nursing sisters are housed in a one-roomed cottage in the vicinity originally intended for a sub-assistant surgeon. With this extra hospital the total number of European beds available in the country is 34. Arrangements are being completed by which a small and much needed European hospital will be opened shortly at Kisumu.

The total number of cases treated reflects the increase of the general European population, as even though this is considerably higher than last year it will be noticed that there has been a drop in the number of officials admitted to the various hospitals.

	1920	1919.	1918.
Total number of beds...	34	27	27
Total number treated	608	500	396
Total number discharged ...	552	452	347
Total number of deaths	22	24	33
Total number remaining	34	24	16

Of the above figures, 176 were officials as against 209 in 1919, and 432 were general European population as against 291 in the preceding year. Three officials died and 19 of the civil population as against 8 and 16 in 1919.

Administration.—Dr. W. H. Kauntze was in charge at Nairobi until my return in April, and Dr. H. H. V. Welch succeeded me as Resident Surgical Officer when I assumed the duties of Principal Medical Officer on Dr. A. D. Milne's leaving, prior to retirement.

Dr. J. Pugh was in charge at Mombasa untl his going on leave in August, when Dr. J. H. Thomson took over.

Lieut.-Col. M. C. Wetherell was in charge at Eldoret from the date of its opening until the end of the year.

The nursing orderly at Nairobi was transferred early in the year on his own request to another department, and his place was not filled up.

The numbers treated in hospital were divided up as follows :—

	Officials.	Non-officials.
Nairobi	135	310
Mombasa	38	104
Eldoret	3	18

Malaria was again the principal cause of admission, 104 cases having been admitted at Mombasa and 92 at Nairobi.

At Mombasa two cases of enteric were treated and at Nairobi there were six and one case of Para-typhoid B. I am of opinion that investigation will prove the existence of Para-typhoid in a large number of cases hitherto labelled Pyrexia of Uncertain Origin.

Surgical operations and surgical diseases again showed a large increase. Eighty operations were performed at Nairobi, of which the following were the most important :—

10 Appendicectomy.

3 Laparatomy.
- 2 exploratory.
- 1 for obstruction caused by a carcinoma of the sigmoid necessitating resection of gut.

5 Hæmorrhoids.

1 Vesical calculus.

2 Inguinal hernia.

1 Amputation of breast.

1 Ectopic gestation.

1 Sarcoma of ovary.

1 Gallstones.

1 Ventro fixation of uterus.

1 Sarcoma of testicle.

1 Hydrocele.

1 G.S.W. arm (Amputation).

One case of curetting was performed.

With the exception of the case of carcinoma of the sigmoid which was in extremis when brought to hospital, all the results were excellent.

During the year suitable accommodation was erected at Nairobi to house the whole of the nursing staff, and this effected a great improvement on the system of half the nurses being lodged at a distance from the hospital with all the attendant difficulties of transport.

At Mombasa it is evident that the requirements of the town will shortly outgrow the available hospital accommodation and this will before long become a problem which will have to be tackled. The increase in the nursing staff sanctioned in the previous year allowed a more adequate number to be posted to Mombasa, but the accommodation for nursing sisters there is inadequate and results in overcrowding and general discomfort which is accentuated by the tropical climate and can only react on the quality of the work and the health of the sisters. Endeavours are being made to improve the present state of affairs, and it is hoped that it will be possible to record an improvement next year.

No structural alterations to hospital or increase in their accommodation has taken place.

2.—THE CIVIL HOSPITALS AND DISPENSARIES.

The figures for 1920 show a large increase both in in and out-patients, and though a considerable proportion of this increase may be attributed to the establishment of two centres in Native Reserves, it is undoubtedly a fact that the native is showing a keener desire to avail himself of the advantages of European methods of treatment of disease. While there has been this great increase in numbers, it is satisfactory to note that there has been a considerable drop in the number and percentage of deaths.

	1920.		1919.		1918.	
	In.	Out.	In.	Out.	In.	Out.
Admissions	20,001	109,737	14,371	95,574	17,215	95,069
Deaths	854	—	1,112	—	1,706	—
Death rate per 1,000 of admissions	42·69	—	77·37	—	90·09	—

Of the civil hospitals in the three towns, Nairobi, Mombasa and Kisumu, the buildings in the case of the two latter are satisfactory as far as they go, but the same cannot be said of Nairobi. The Nairobi civil hospital is a relic of the early days of the Colony and constructed as it is of wood and iron, with wooden floors, can only be described as most unsatisfactory. While a wood and iron building can be utilized for a hospital for Europeans, it is most unsuitable for Indians and Africans whose personal habits render the provision of, at any rate, impervious floors a necessity. I consider the provision of a new and up-to-date civil hospital a pressing need for the capital. All the civil hospitals lack special provisions for the treatment of venereal diseases or midwifery, and it will not be long before the accommodation available will be inadequate for the demands made upon it.

A nursing sister has been installed during the year at the Mombasa civil hospital and the result of this has more than justified the experiment. The Medical Officer reports that the appointment has resulted in many more applications from Indian women for admission to hospital, that the ward-boys are receiving better training in nursing, with the result that they now look intelligently after serious cases. During 1921 it is hoped to be able to post nursing sisters to more of the civil hospitals, but it is necessary to remark that only ladies with special qualifications of tact in dealing with and sympathy for natives are suited for this branch of work.

The foregoing leads to consideration of the type of nursing and the general staffing of the lower grades in the native hospitals. Up to the present there has been no general system for the training of the native attendants. When vacancies occur the first applicant is taken on and the Medical Officer with, in the past, no help has had himself, while performing all his other duties, to give what instruction he has been able as regards nursing and attendance on the sick. The appointment of nursing sisters will render the instruction of a higher type and these ladies, with no duties outside the hospital, will have more time to devote to the subject and there will be a consequent increase of efficiency. I am of opinion, however, that what is required is a central institution at which natives can be trained in medical work from which, as vacancies arise, they can be drafted to the various hospitals, and which would form the basis of a medical college. Kisumu, with its efficient native hospital, medical officers and nurses and intelligent native population presents nearly all the requisites for such an institution,

and it is a great pity that the money furnished by the Red Cross Society for the purpose of starting a centre for medical instruction for natives has been handed over to a missionary society instead of being administered, as it should, by Government.

3.—LUNATIC ASYLUM.

Dr. F. L. Henderson was in medical charge of the Asylum throughout the year and submits the following report :—

1.—ACCOMMODATION.

NUMBER OF BEDS.

	1920.	1919.	1918.
European Male	8	8	8
European Female	4	4	—
Asiatic and African Male ...	40	40	40
Asiatic and African Female ...	12	12	12
Total	64	64	60

This is the same as the previous year.

2.—CRIMINAL LUNATICS.

There are 7 males (including 4 convicted of murder) and 2 females (both convicted of murder) Criminal Lunatics in the Asylum.

3.—STAFF.

EUROPEAN (MALE).

Medical Officer	1	
Superintendent	1	Proceeded on leave 5–12–20.
European Attendants ...	2	1 dismissed during December, 1920.
TOTAL	4	
Remaining 31–12–20 ...	2	Medical Officer and Acting S uperintendent

EUROPEAN (FEMALE).

Matron	1	Proceeded on leave 5–12–20.
Assistant Matron	1	Resigned and left February, 1920.
Special Nurse	1	At periods during March and May, 1920.
Temporary Assist. Matron	1	Appointed November, 1920.
TOTAL	4	
Remaining 31–12–20 ...	1	Now acting Matron.

NATIVE (MALE).

Head Attendant	1
Second Attendant	1
Male Attendants...	11
Cook	1
Messenger	1
Sweeper	1
TOTAL	16

NATIVE (FEMALE).

Female Attendants	4
TOTAL	4

4.—ASYLUM POPULATION.

NUMBER ON REGISTER IN JANUARY 1ST, 1920.

	1920.	1919.	1918.
Males	59	43	48
Females	19	20	14
TOTALS	78	63	62

(*a*) Number of cases treated during 1920, 1919 and 1918.

	1920.			1919.			1918.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
Discharged { Recovered ...	53	11	64	32	6	38	35	5	40
Discharged { Improved ...	3	3	6	9	1	10	10	2	12
Not improved	57	15	72	60	18	78	43	20	63
Died	22	1	23	22	6	28	36	7	43
TOTAL	135	30	165	123	31	154	124	34	158

(*b*) Cases transferred, discharged and died.

	1920.	1919.	1918.
Transferred	Nil	Nil	Nil
Discharged	70	48	52
Died	23	28	43
TOTAL	93	76	95

Total number of cases on Register 31st December, 1920 ... 72

Average daily number during 1920 70

(5). ADMISSIONS.

The 87 cases admitted during 1920 were classified as under :—

Idiocy	—
Melancholia	3
Mania	33
Dementia	15
Delusional Insanity	16
Other mental diseases, including G.P.I. and Alcoholic Insanities	20
TOTAL	87

Aetiology.—The majority of European admissions was the result of over-indulgence in alcohol. Three of these cases (males) have, after the acute symptons had subsided, been sent to England. The remainder, after ten days' observation, have sufficiently recovered, to be discharged without being definitely certified insane. One case, however, of delirium tremens, died five hours after admission.

Discharges.—64 cases were discharged recovered during the year. Three cases, who had improved, were discharged to England, and 3 who had improved, were discharged to their friends in this Colony.

Deaths.—22 male and 1 female deaths occurred during 1920. They were classified as under :—

	Male.	Female.	Total.
Mania	8	1	9
Delusional Insanity ...	5	—	5
Dementia	3	—	3
General Paralytic Insanity	5	—	5
Pneumonia	1	—	1
TOTAL	22	1	23

Escapes.—One Goan escaped temporarily from a working party in the shamba. One female Kavirondo escaped temporarily by breaking through the bamboo enclosure. Disciplinary action was taken against native attendant in charge of the Goan and against the female attendant in charge of the woman.

Casualties.—These were of such a trivial nature as not to require medical attention.

Restraint and Seclusion.—These are practically non-existent; all the patients are free to walk about in the Asylum grounds under supervision. The attendants spend much of their time in supervising working parties in the shamba and Asylum grounds.

One European male had to be put under restraint.

Operations.—Nil.

Health.—There is practically no illness. The patients mostly put on weight and improve in general health after a short time in the Asylum.

Progress of Asylum.—A new European male block to accommodate 12 patients with rooms for attendants, offices, bathrooms, lavatories. kitchen and stores, is nearly completed. Structural operations, however, have been discontinued, and the block is not opened yet.

(2) The airing court, adjoining this new block. has been laid out, spacious walks constructed, flower beds and lawns have been made, and hedges planted round the whole.

(3) The swamp surrounding this block has been filled up with stones and gravel.

(4) Many young trees have been planted.

(5) A lot has been done towards the making of drains.

(6) A new enclosure of bamboo has been constructed round the female block.

7. Half of the entire outside boundary has been enclosed with bamboo fencing, and a further supply of bamboo is expected soon to complete the whole. This is very urgent as the present state of the fence is unsafe and affords no safeguard against escapes; all these items except the first are the work of the Asylum inmates.

Occupation of Patients.—All Asylum work is done by patients, including tailoring, repair of clothes, laundry, cooking, gardening and upkeep of Asylum grounds. European patients, when able, assist in clerical work. The shamba is entirely worked by the lunatics, and in addition the women do basket work.

Board of Visitors.—Meets monthly; at each meeting all the patients and Asylum premises are inspected and patients recommended for discharge are brought before the Board for examination.

Farm.—All native patients who are able are employed at work on the shamba. During 1920 the following crops were produced :—

	lbs. (approximately).
Maize	7,000
Maize meal	500
Beans	5,500
Potatoes	800

4.—GOVERNMENT DENTAL SURGERY, NAIROBI.

Report by Dr. V. G. L. van Someren.

This report covers the period April to December. I returned from leave at the beginning of April, and after superintending minor alterations to the Dental Offices, resumed work on the 15th.

The amount of work continues to increase and has assumed such proportions as to make the appointment of at least one Assistant and a Mechanic a necessity.

Total Appointments Official	1,283
Officials treated	945
Treatments :—	
Fillings (Plastic)	992
„ (Gold)	14
Extractions	344
Crowns (Gold & Porcelain) ...	33
Bridges	5
Root fillings	175
Scalings, done in all cases not recorded particularly.	
Dentures	35
Repairs to Dentures	71

The following outstations were visited, Mombasa twice; Kisumu once, and Nakuru once.

I would point out that visits to outstations greatly interfere with work in Headquarters, requiring the postponement of work for three weeks to a month, besides which causing Government considerable expense in meeting the cost of work done by private practitioners for officials during my absence from Nairobi.

5.—GAOLS.

The general health of prisoners in the three principal gaols of the country has shown an improvement on last year, the figures, however, for pneumonia remain unsatisfactory, although slightly lower than last year. Out of the total of 100 admissions during the year 93 are furnished by Nairobi, and are almost certainly to be accounted for by the continually overcrowded condition of the gaol. Influenza was reported in small numbers from all three prisons.

Kisumu gaol gives the lowest average number on the sick list, and Mombasa had only one death, due to pulmonary tuberculosis.

The hospital accommodation at Nairobi remains inadequate and primitive, patients are still largely accommodated in tents and such operations as may be necessary have to be done in the open air. There is no dispensary or out-patient room.

No serious outbreak of infectious disease occurred during the year.

TABLE SHOWING SICK AND DEATH RATES AMONGST PRISONERS AT THE MOMBASA, NAIROBI AND KISUMU GAOLS.

	Mombasa.		Nairobi.		Kisumu.	
	1919.	1920.	1919.	1920.	1919.	1920.
Total number of prisoners on 1st January	338	287	667	767	140	140
Number admitted during year ...	1,228	1,220	2,903	3,047	1,188	535
Average daily number in gaol ...	291	308	627	737	112	118
Total number placed on sick list ..	206	285	1,041	989	364	146
Total number of days on sick list ...	2,286	2,573	15,826	16,374	2,443	1,375
Average number sick daily	6·26	7·03	43·36	44·70	6·69	3·76
Total number of deaths	4	1	54	23	5	3
Percentage of deaths to average daily strength	1·37	·32	8·61	3·12	4·46	2·54

The principal causes of admission were :—

Dysentery.—42 cases and 3 deaths compared with 66 cases and 13 deaths last year.

Influenza.—Nineteen cases only with 2 deaths. These figures show a considerable drop as compared with 1919 with 139 cases and 14 deaths. The cases were of a mild type.

Malaria.—Shows another considerable drop with 172 cases and 1 death, as against 357 cases and 5 deaths.

Chicken-pox.—An outbreak with 46 cases occurred at Kisumu. No cases were reported from the other gaols.

Pneumonia.—The figures for the past two years are :—

	Admissions.	Deaths.
1919	131	2
1920	100	17

Diarrhœa.—Thirty-eight admissions and no deaths show that the dietary and preparation of the food is satisfactory. In 1919 there were 131 admissions and one death.

Local Injuries.—Account for 142 cases, all of a trivial nature and caused from minor accidents received at work.

Mortality.—Only twenty-seven deaths occurred as against 63 last year. The causes of death were :—

Dysentery	3
Malaria	1
Influenza	2
Tuberculosis	1
Pneumonia	17
Other diseases	3

Of the above, 23 occurred at Nairobi.

RETURNS.

TABLE I.

ADMINISTRATIVE DIVISION.

Dr. A. D. Milne, C.M G. ...	Principal Medical Officer.
Dr. J. L. Gilks	Acting Principal Medical Officer.
Dr. C. L. Chevallier	Deputy Principal Medical Officer.
Mr. R. Stanley, M.B.E. ...	Office Superintendent.
Mr. R. Davis	Clerk.
Mr. G. E. Scattergood	,,
Mr. J. S. Robertson, M.B.E. ...	Medical Storekeeper.

MEDICAL DIVISION.

Dr. F. L. Henderson	Senior Medical Officer.
Dr. G. R. H. Chell	,, ,, ,,
Dr. J. Pugh	,, ,, ,,
Dr. C. J. Wilson, M.C.	,, ,, ,,
Dr. V. G. L. van Someren ...	Dental Surgeon.
Dr. H. H. V. Welch	Resident Surgical Officer.
Dr. T. F. Lumb	Medical Officer.

TABLE I.—*continued.*

MEDICAL DIVISION—*continued.*

Dr. N. P. Jewell, M.C.	Medical Officer.
Dr. A. D. J. B. Williams	,, ,,
Dr. T. H. Massey, M.C.	,, ,,
Dr. P. F. Nunan	,, ,,
Dr. J. H. Thomson	,, ,,
Dr. V. M. Fisher	,, ,,
Lieut.-Col. M. C. Wetherell	,, ,,
Dr. A. S. Mackie	,, ,,
Dr. F. T. Auden	,, ,,
Dr. R. C. Briscoe	,, ,,
Dr. N. B. Peacock	,, ,,
Dr. B. W. Dakers	,, ,,
Dr. C. V. Braimbridge	,, ,,
Dr. G. W. Pope	,, ,,
Dr. H. R. A. Philp	District Surgeon.
Dr. J. Forbes	,, ,,
Dr. G. Cross	,, ,,
Mr. H. Ogden	Dispenser.
Mr. T. R. Wilson, D.C.M.	,,
Mr. E. R. Edmonds	,,
Miss F. L. Neave	,,
Mrs. E. R. Barrett	Matron.
Miss H. M. Whitburn	Nursing Sister.
Miss L. Merryweather	,, ,,
Miss I. Wilson	,, ,,
Mrs. S. J. Harrison	,, ,,
Miss A. E. Davis	,, ,,
Miss M. I. Rhind	,, ,,
Miss F. O'Neill	,, ,,
Miss R. Anderson	,, ,,
Miss A. B. Wharin	,, ,,
Miss H. M. Friedricks	,, ,,
Miss P. S. Joubert	,, ,,
Miss A. Glen Leary	,, ,,
Miss V. B. Painter	,, ,,
Miss A. L. Stuart	,, ,,
Miss E. B. Wishart	,, ,,
Miss M. A. Perkin	,, ,,
Miss H. Masters	,, ,,
Miss E. M. Froneman	,, ,,
Miss M. Edwards	,, ,,
Miss H. Hayward	,, ,,
Miss I. Cameron	,, ,,
Miss J. D. Murdoch	,, ,,
Miss M. Aitken	,, ,,
Miss M. B. Munro	,, ,,
Miss G. M. Buckley	,, ,,
Mr. W. Henfrey	Supt., Lunatic Asylum.
Mrs. L. A. Henfrey	Matron, Lunatic Asylum.
Mr. A. Brown	Warder, Lunatic Asylum.
Mr. S. J. Bosch	,, ,, ,,

SANITATION DIVISION.

Dr. A. R. Paterson	Ag. Chief Sanitation Officer.
Dr. G. Walker	Medical Officer of Health.
Dr. H. S. de Boer, M.C.	,, ,, ,, ,,
Dr. E. W. N. Guinness	,, ,, ,, ,,

TABLE I.—*continued.*

SANITATION DIVISION.—*continued.*

Mr. A. F. Dennett	... ...	Sanitary Inspector.
Mr. B. E. F. Wetkin	... ...	,, ,,
Mr. E. E. Williams	... ..	,, ,,
Mr. F. Strawbridge	... ...	,, ,,
Mr. P. Cairns ...	... ...	,, ,,
Mr. J. P. Cook ...	... ...	,, ,,
Mr. E. Holness ...	... ...	,, ,,
Mr. R. C. Mills ...	.. ...	,, ,,
Mr. F. R. Creighton	... ...	,, ,,
Mr. A. P. Ling ...	... ...	,, ,,
Mr. C. F. Bickell	... ...	,, ,,
Mr. A. Bunker ...	... ...	,, ,,
Mr. A. E. Taylor	... ...	,, ,,
Mr. W. J. Edwards	... ...	Supt. Infectious Diseases Hospital, Nairobi.
Mr. A. E. W. Webb	... ...	Clerk.
Miss R. K. Sharp	... ...	Nurse attached to Health Office, Nairobi.

LABORATORY DIVISION.

Dr. W. H. Kauntze, M.B.E.	...	Senior Bacteriologist.
Dr. P. A. Clearkin	... ...	First Asst. Bacteriologist.
Mr. F. A. Bailey	... ...	Laboratory Assistant.

TABLE II.

FINANCIAL.

The sanctioned Medical Budget for the year 1920–21 was a total of £184,409, as compared with £94,362 for the preceding year.

Of the 1920–21 grand total, £158,336 2s. 6d. was expended, leaving an unexpended sum of £26,073.

The saving was chiefly due to buildings for three Government units which balance has to be carried forward to provide for completion of buildings now in course of erection and savings on appointments in Sanitation Division provided for not being filled.

The headings under which the vote was arranged were as follows :—

SCHEDULE XIV.—MEDICAL DEPARTMENTS.

	Estimates.	Actual Expenditure.
	£	£ s. cts.
ADMINISTRATIVE DIVISION.		
Personal Emoluments	9,801	8,808 16 93
(Under this heading are included the salaries of the Principal Medical Officer, Deputy Principal Medical Officer, Chief Sanitation Officer, Office Superintendent, Medical Storekeeper, clerical establishment, messengers and packers.)		
MEDICAL DIVISION.		
Personal Emoluments	57,172	59,357 10 46
(Under this heading are included the salaries of the Senior Medical Officers, Resident Surgical Officer, Dental Surgeon, Medical Officers, Dispensers, Nurses, Superintendent, Warders, Matron and Assistant Matron Lunatic Asylum, Assistant Surgeons, Sub-Assistant Surgeons, Hospital Compounders, Native Hospital Attendants and Lunatic Asylum Attendants.)		

TABLE II.—*continued.*

SANITATION DIVISION.

	Estimates.	Actual Expenditure.		
	£	£	s.	cts.
Personal Emoluments	21,147	14,364	10	73
(Under this heading are included the salaries and any duty allowances granted of the Medical Officers of Health, Sanitary Inspectors, Nurses, Vaccinators, Native Attendants for Infectious Diseases Hospitals, Leper Lazaretto and Quarantine stations, clerical establishment, mechanics for Clayton disinfectors, office and gharri boys.)				
LABORATORY DIVISION.				
Personal Emoluments	3,804	3,912	16	66
(Under this heading are included the salaries of the Senior and Assistant Bacteriologists, European and Asiatic Laboratory Assistants, Native Attendants and fees to Bacteriologists.				
MEDICAL DEPARTMENTS.				
Other Charges	66,450	67,377	0	52
Special Warrants	8,682			
(Under this heading are included Medical and Surgical stores, Contingencies, Transport, Up-keep of Hospitals, Uniforms, Furniture and equipment, Electric Lighting, Water Supplies, Epidemics, Bush clearing, Ambulance and motor services, etc., Medical Mission Units.)				
Special Expenditure	1,500	1,500	0	00
(Purchase of disinfectors and buildings for 3 Medical Units in Native Reserves.)	15,853	3,015	6	00

N.B.—The totals in Estimates have been increased by 50% on account of conversion at Rs. 10/- to £1.

REVENUE.

The total amount of revenue collected as hospital fees, sales of medicines and surgical stores, bills of health and registration fees, was as follows:—

	£	s.	cts.
Hospital fees and sales of medicines	6,026	18	22
Bills of Health	634	10	00
Registration Fees	48	0	00
TOTAL ...	£6,709	8	22

Last year the total revenue collected amounted to £3,936 4 00.

TABLE III.

RETURN OF STATISTICS OF POPULATION FOR THE YEAR 1920.

KENYA COLONY AND PROTECTORATE.	Europeans and Whites.	Africans and Others.	Asiatics.
Number of Inhabitants in 1920	8,000*	3,000,000*	25,000*
Number of Births registered in 1920	183	†	†
Number of Deaths registered in 1920	88	†	†
Number of Immigrants during 1920	4,705	1,239	9,935
Number of Emigrants during 1920	(Figures not obtainable.)		
Number of Inhabitants during 1919	8,000*	3,000,000*	25,000*

* Approximately. † Not registered.

.B.—The last census taken was in 1911, and the number of European and Asiatic inhabitants shown in this table is not, therefore, very reliable.

TABLE IV

1.—SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN OF NAIROBI.

For the Year ending 31st December, 1920.

	Approximate Area.	Number of proclaimed Open Spaces.
1918	7 sq. miles ...	Public Park. Jeevanjee Gardens. Arboretum. Municipal Forest. Show Ground, Parklands.
1919		
1920		

2.—POPULATION.

	Number of Natives.		Number of Europeans.		Total Approx.
	Males.	Females.	Males	Females.	
1918	No estimate possible.		No estimate possible.		21,565
1919	No estimate possible.		No estimate possible.		
1920	No estimate possible.		No estimate possible.		22,700

3.—HOUSING.

	Number occupied by Europeans.	Number occupied by Natives and Asiatics.
Number of Houses :—		
1918	524	335 Asiatics only.
1919	662	417 do.
1920	695	459 do.

Number of Huts :—

1918	... ..	1,475 approximately.
1919	... ...	1,450 do.
1920	... ...	1,463 do.

4.—MOSQUITO PROTECTION OF HOUSES.

	1918.	1919.	1920.
Number of European houses wholly mosquito-protected ...	*Nil*	*Nil*	*Nil*
Number of European houses with mosquito room			
Number rendered during the year wholly mosquito-protected			
Number rendered during the year partially mosquito-protected			

TABLE IV.—*continued.*

5.—ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1918.	1919.	1920.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	1	...	3
Number of houses erected with sanction as to site, construction, and relation to other buildings	37	49	71
Number of huts erected with sanction as to site, construction, and relation to other buildings	2	...	2
Number of houses built without sanction	1	...	1
Number of huts built without sanction	3	...	4

ACTION TAKEN.

	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1918	3	1	2	...
1919	...	...	...	...
1920	4	1	3	...

6.—MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1918	2	1 paved 1 undrained	1
1919	2	1 paved 1 undrained	1
1920	2	1 paved 1 undrained	1

7.—SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved.
1918	2	2	*Nil*
1919			
1920	2	2	...

One more slaughter-house at M'Bagathi.

TABLE IV.—*continued.*

8.—LATRINES.

	For Males.		For Females.	
	Number.	Number of Seats.	Number.	Number of Seats.
Number of public latrines :—			Europeans.	
1918	26	212	...	...
1919	24	200	...	...
1920	24	200	...	...
Number of new public latrines erected during the year :—				
1918	...	...	...	...
1919	...	...	...	...
1920	...	...	...	...
Number of public latrines repaired during the year :—				
1918	5	40	...	...
1919	3	24	...	...
1920	2	...	...	...
Number of public latrines demolished during the year :—				
1918	2	14	1	2
1919	2	12	...	...
1920	...	...	...	...

	1918.	1919.	1920.
Number of private latrines	2,223	2,263	2,477
Average number of pails of night-soil daily removed... ...	2,432	2,436	2,834
Average number of soiled pails removed and clean pails substituted	...	...	...
Number of night-soil men employed to clean latrines and to remove excreta	99	99	122
Number of cesspools	1	1	1
Number of cesspools cleaned	1	1	1
Number of new cesspools constructed during the year ...	...	...	...
Number of old cesspools abolished	4	...	...
Number of cesspools oiled regularly by Department	...	...	...

9.—REMOVAL OF REFUSE.

	1918.	1919.	1920.
Number of dustbins	1,400	1,282	1,593
Number of carts at work daily to remove refuse from streets	12	15	27
Amount of refuse removed daily	24	24	90
Number of carts at work daily to remove refuse from yards and premises	22	22	26
Amount of refuse removed daily from yards and premises ...	40	45	10
Number of men employed for removing refuse	90	95	56

TABLE IV.—*continued.*

10.—MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of slaughter-house and market offal.		
	1918.	1919.	1920.	1918.	1919.	1920.	1918.	1919.	1920.
Buried or trenched	2,436	2,436	300	...	...	90	2	2	3
Burnt	...	...	...	...	...	...	1	1	2
Thrown into sea	...	...	...	...	...	...	...	...	...
Otherwise dealt with	...	...	...	...	...	...	...	...	...

11.—AVERAGE DAILY NUMBER OF CARTLOADS OF CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

	1918.	1919.	1920.
Cartloads	20	22	25

12.—WATER SUPPLY.

Nature of Water Supply.	1918	1919.	1920.
Pipe-borne water :—			
Source (river, lake or spring)—	River and Spring.	River and Spring.	River and Spring.
Number of linear yards	518,897	520,773	528,249
Number of standpipes along roads	...	...	...
Number of standpipes in compounds and houses ...	1,241	1,208	1,207
Wells :—			
Public—			
Number	...	...	...
Number with pumps protected against surface water and mosquito-protected	...	...	...
Private—			
Number	...	...	...
Number with pumps protected against surface water and mosquito-protected	...	...	...
Tanks :—			
Public—			
Number underground	*Nil*	*Nil*	*Nil*
Number mosquito-protected and served by pumps ...			
Number above ground			
Number mosquito-protected			
Number of 400 gallons capacity or less			
Number above 400 gallons			
Private—			
Number underground	...	...	...
Number mosquito-protected	...	...	...
Number above ground...	155	155	155
Number mosquito-protected	155	155	155
Number of 400 gallons capacity or less	43	43	43
Number above 400 gallons	112	112	112
Nature of tanks :—			
Wood	...	...	...
Iron	155	155	155
Concrete	...	...	...
Barrels :—			
Number	150	150	150
Number mosquito-protected	140	140	140

TABLE IV.—*continued.*

13.—DRAINAGE.

	Public.	Private.
Masonry Drains—		
Linear yards of masonry drains—		
1918	36,497	No information
1919	37,074	,,
1920	40,009	,,
Linear yards reconstructed during the year—		
1918	...	,,
1919	...	,,
1920	...	,,
Linear yards repaired during the year—		
1918	...	,,
1919	64	,,
1920	175	,,
Linear yards of new drains constructed during the year—		
1918	558	,,
1919	577	,,
1920	3,535	,,
Earth Drains or Ditches cleansed—		
Number of linear yards of ditches cleansed—		
1918	135,227	,,
1919	200,689	,,
1920	354,457	,,
Number of linear yards of ditches dug and graded—		
1918	135,227	,,
1919	200,689	,,
1920	300,584	,,
Average frequency of clearing ditches of grass—		
1918	Where necessary	,,
1919		,,
1920		,,

14.—CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1918.	1919.	1920.
Number of square yards of weeds, grass and vegetation cut and removed	17,613,000	3,296,040	...
Average frequency of clearance of rank vegetation on same area	When necessary	When necessary	When necessary

15.—EXCAVATIONS OF LOW-LYING LAND.

	1918.	1919.	1920.
Number of pools and excavations	36	30	*Nil.*
Number of excavations filled up	27	98	80
Amount of low-lying and marsh land raised and drained	1½ acres	...	...
Number of pools, marshes, etc., fish-stocked ...	...	...	...
Number of cubic yards of material used for filling up pools and excavations	...	...	...
Number of persons fined for making new excavations	No information	No information	No information
Average number of men daily employed in filling up pools, etc.	20	20	20

TABLE IV.—*continued.*

16.—OILING.

	1918.	1919.	1920.
Number of drains oiled	All mosquito breeding places were disinfected.		
Number of pools and excavations oiled	208	633	700
Number of tanks and barrels oiled	96	1,270	3,000
Average number of men daily employed for oiling drains, pools and water-tanks or barrels	12	12	3

17.—INSPECTIONS AND PROSECUTIONS.

	1918.	1919.	1920.
Number of Inspectors employed	3	3	3
Number of premises inspected	7,918	6,700	5,416
Number of houses where larvæ were found	573	778	642
Number of notices and reminders served to remove conditions causing the breeding of larvæ	629	814	230
Number of persons fined for having mosquito larvæ on premises	5	1	—
Number of notices served to remove insanitary conditions on premises	836	552	534
Number of persons fined for not removing insanitary conditions after notice	38	...	3
Number of soda and ærated water factories inspected	5	5	7 inspected weekly

TABLE IV.

1.—SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN OF MOMBASA.

For the Year ending 31st December, 1920.

	Approximate Area.	Number of proclaimed Open Spaces.
	Island, 8¾ square miles Town, 270 acres	1 public garden.

2.—POPULATION.

	Number of Natives.		Number of Europeans.		Total Approx.
	Males.	Females.	Males.	Females	
1918	14,416	15,267	162	39	29,884
1919	12,620	9,549	191	90	30,039
	Children, 7,527		Children, 55		
1920	12,941	7,686	300	100	26,018
	Children, 4911		Children, 80		

TABLE IV.—*continued.*

3.—HOUSING.

	Number occupied by Europeans.	Number occupied by Natives and Asiatics.
Number of Houses :—		
1918	110	600–700
1919	110	1,006
1920	170 approx.	1,036

Number of huts :—

1918	3,541
1919	3,868
1920	3,917

4.—MOSQUITO PROTECTION OF HOUSES.

	1918.	1919.	1920.
Number of European houses wholly mosquito-protected ...	...	...	...
Number of European houses with mosquito room	...	2	...
Number rendered during the year wholly mosquito-protected	...	...	...
Number rendered during the year partially mosquito-protected	...	2	...

5.—ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1918.	1919.	1920.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	...	...	1
Number of houses erected with sanction as to site, construction, and relation to other buildings	29	48	53
Number of huts erected with sanction as to site, construction, and relation to other buildings	192	110	49
Number of houses built without sanction	...	2	1
Number of huts built without sanction	...	...	...

ACTION TAKEN.

	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1918	...	...	...	...
1919	...	2	1	2
1920	...	4	...	altered to conform to plans.

Nearly 150 houses and huts, buildings in contravention of Plans, were made to conform.

TABLE IV.—*continued.*

6.—MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1918	2	2	...
1919	3	2	1
1920	3	2	1

7.—SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved.
1918	2	2	...
1919	1	1	...
1920	1	1	...

8.—LATRINES.

	For Males.		For Females.	
	Number.	Number of Seats.	Number.	Number of Seats.
Number of public latrines :—				
1918...	41	177	...	11
1919...	7	17	...	...
1920...	9	33	...	...
Number of new public latrines erected during the year :—				
1918...	4	14	...	...
1919...	1	2	...	...
1920...	3	24	...	...
Number of public latrines repaired during the year :—				
1918...	...	...	...	...
1919...	...	...	...	...
1920...	...	...	...	...
Number of public latrines demolished during the year :—				
1918...	2	...	...	...
1919...	1	...	...	...
1920...	3 (choos)	...	...	...

	1918.	1919.	1920.
Number of private latrines :—			
Average number of pails of nightsoil daily removed	306	255	331
Average number of soiled pails removed and clean pails substituted	...	...	28
Number of nightsoil men employed to clean latrines and to remove excreta	23 by Consy. 23 by Rly.	29	56
Number of cesspools	Some thousands.		
Number of cesspools cleaned	69	70	70
Number of new sullage cesspools constructed during the year	...	26	85
Number of old cesspools abolished	10	9	41
Number of cesspools oiled regularly by Department	122	1,378	1,077

NOTE.—All new sullage water cesspools and many old ones are now provided with air-tight covers and do not require oilings.

TABLE IV.—*continued.*

9.—REMOVAL OF REFUSE.

	1918.	1919.	1920.
Number of dustbins	57	1,006	1,563
Number of carts at work daily to remove refuse from streets	15	16	23 1 mot'r lorry
Amount of refuse removed daily, tons	17	17	56 cart loads
Number of carts at work daily to remove refuse from yards and premises	1	1	2
Amount of refuse removed daily from yards and premises ...	1 ton	1 ton	4 loads
Number of men employed for removing refuse	176	167	227

10.—MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

	Daily average number of Pails of Excreta.			Daily average number of Cartloads of Refuse.			Daily average number of Cart-loads of Slaughter-house and Market Offal.		
	1918.	1919.	1920.	1918.	1919.	1920.	1918.	1919.	1920.
Buried or trenched ...	...	...	...	...	...	...	...	...	...
Burnt	231	...	...	...	...	42	...	...	...
Thrown into sea ...	180	180	331	...	42	...	...	230	...
Otherwise dealt with ...	...	...	...	...	...	...	...	...	...

11.—AVERAGE DAILY NUMBER OF CARTLOADS OF CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

1918.	1919.	1920.	
4	4	4	

TABLE IV.—*continued.*

12.—WATER SUPPLY.

Nature of Water Supply.	1918.	1919.	1920.
Pipe-borne water—			
Source (river, lake, or spring)—	River.	River.	River.
Number of linear yards	25,094	10,740	11,740
Number of stand-pipes along roads	7	20	1
Number of stand-pipes in compounds and houses ..	144	100	125
Wells :—			
Public—			
Number	28	28	28
Number with pumps protected against surface water and mosquito-protected	...	...	...
Private—			
Number	86	83	81
Number with pumps protected against surface water and mosquito-protected	...	...	...
Tanks :—			
Public—			
Number underground	...	...	...
Number mosquito-protected and served by pumps ...	...	...	...
Number above ground	...	2	...
Number mosquito-protected	...	2	...
Number of 400 gallons capacity or less	...	...	...
Number above 400 gallons	...	2	...
Private—			
Number underground	82	82	82
Number mosquito-protected	82	82	82
Number above ground	...	...	...
Number mosquito-protected	...	...	...
Number of 400 gallons capacity or less	...	...	
Number above 400 gallons	...	...	...
Nature of Tanks :—			
Wood	...	...	...
Iron	Unknown.	Unknown.	Unknown.
Concrete	82	82	82
Barrels :—			
Number	Unknown.	Unknown.	Unknown.
Number mosquito-protected	60%	Practically all	Practically all

TABLE IV.—*continued.*

13.—DRAINAGE.

	Public.	Private.
Masonry Drains :—		
Linear yards of masonry drains :—		
1918	...	...
1919	...	...
1920	...	300 approx.
Linear yards reconstructed during the year :—		
1918	35	...
1919	...	...
1920	...	...
Linear yards repaired during the year :—		
1918	87	...
1919	...	...
1920	...	Where necessary.
Linear yards of new drains constructed during the year :—		
1918	190	...
1919	...	...
1920	...	1,500
Earth drains or ditches cleansed—Number of linear yards of ditches cleansed :—		
1918	...	...
1919	...	.
1920	Where necessary.	Where necessary.
Number of linear yards of ditches dug and graded :—		
1918	1,400	...
1919	...	...
1920	1,310	...
Average frequency of clearing ditches of grass :—		
1918	Where necessary.	
1919		
1920		

14.—CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1918.	1919.	1920.
Number of square yards of weeds, grass and vegetation cut and removed	1,030	785½ acres	1,017 acres
Average frequency of clearance of rank vegetation on same area	Frequency depends on rainfall.		

TABLE IV.—*continued.*

15.—EXCAVATIONS OF LOW-LYING LAND.

	1918.	1919.	1920.
Number of pools and excavations	Unknown.	Unknown.	Unknown.
Number of excavations filled up	11	31	35
Amount of low-lying and marsh land raised and drained ...	½ acre	...	1 acre nr.SalimRd.
Number of pools, marshes, etc., fish-stocked	17	13	...
Number of cubic yards of material used for filling up pools and excavations	200	171	170 approx.
Number of persons fined for making new excavations ...	...	...	...
Average number of men daily employed in filling up pools, etc.	Casual.	Casual.	Casual.

16.—OILING.

	1918.	1919.	1920.
Number of drains oiled	...	300 yards	300 yards
Soakaways	...	130	130
Number of pools and excavations oiled	1	8	19
Number of tanks and barrels oiled	453	274	211
Average number of men daily employed for oiling drains, pools, and water tanks or barrels	6	6	7

17.—INSPECTIONS AND PROSECUTIONS.

	1918.	1919.	1920.
Number of European Sanitary Inspectors employed ...	2	3 average	3 average
Number of houses inspected	6,482	12,781	23,311
Number of houses where larvæ were found	...	180	238
Number of notices served to remove conditions causing the breeding of larvæ	408	531	320
Number of persons fined for having mosquito larvæ on premises	...	5	4
Number of notices served to remove insanitary conditions on premises	703	2,171	1,042
Number of persons fined for not removing insanitary conditions after notice	1	16	12
Number of soda and ærated water factories inspected	4	4	4

TABLE IV.

1.—SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN OF KISUMU (NYANZA PROV.)

FOR THE YEAR ENDING 31ST DECEMBER, 1920.

	Approximate Area.	Number of proclaimed Open Spaces.
1918	19·6 sq. miles	1
1919	19·6 sq. miles	1
1920	19·6 sq. miles	1

2.—POPULATION.

	Number of Natives.		Number of Europeans.		Total approx.
	Males.	Females.	Males.	Females.	
1918 ...	Natives 4,000 Asiatics 777	Natives 1,370 Asiatics ...	96	30	6,273
1919 ..	Natives 3,600 Asiatics 800	Natives 2,000 Asiatics 300	100	50	6,850
1920 ...	Natives 4,320 Asiatics 960	Natives 2,200 Asiatics 360	150	60	8,050

TABLE IV.—*continued.*

3.—HOUSING.

	Number occupied by Europeans.	Number occupied by Natives and Asiatics.
Number of Houses :—		
1918	57	145
1919	57	149
1920	57	150

Number of Huts :—	
1918	1,200
1919	1,220
1920	1,230

4.—MOSQUITO PROTECTION OF HOUSES.

	1918.	1919.	1920.
Number of European houses wholly mosquito-protected ...	19	19	20
Number of European houses with mosquito room	51	52	53
Number rendered during the year wholly mosquito-protected...	1	*Nil*	1
Number rendered during the year partially mosquito-protected	*Nil*	*Nil*	1

5.—ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1918.	1919.	1920.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	*Nil*	*Nil*	3
Number of houses erected with sanction as to site, construction, and relation to other buildings	1	5	2
Number of huts erected with sanction as to site, construction, and relation to other buildings	39	20	20
Number of houses built without sanction	*Nil*	*Nil*	*Nil*
Number of huts built without sanction	*Nil*	*Nil*	*Nil*

ACTION TAKEN.

	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1918	...	2	*Nil*	*Nil*
1919	...	1	23	*Nil*
1920	...	3	50	*Nil*

6.—MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1918	1	1	*Nil*
1919	1	1	*Nil*
1920	1	1	*Nil*

TABLE IV.—*continued.*

7.—SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved.
1918	2	2	*Nil*
1919	2	2	*Nil*
1920	2	2	*Nil*

8.—LATRINES.

	For Males.		For Females.	
	Number.	Number of Seats.	Number.	Number of Seats.
Number of public latrines :—				
1918...	16	123	...	...
1919...	15	113	...	...
1920...	15	101	...	...
Number of new public latrines erected during the year :—				
1918...	*Nil*	*Nil*	...	..
1919...	*Nil*	*Nil*	...	...
1920...	2	12	...	...
Number of public latrines repaired during the year :—				
1918...	2	2	...	...
1919...	2	...	...	...
1920...	2	24	...	...
Number of public latrines demolished during the year :—				
1918...	2	2	...	...
1919...	1	10	...	...
1920...	2	24	...	...

	1918.	1919.	1920.
Number of private latrines	308	315	320
Average number of pails of nightsoil daily removed	674	679	683
Average number of soiled pails removed and clean pails substituted...	*Nil*	*Nil*	*Nil*
Number of nightsoil men employed to clean latrines and to remove excreta	45	45	45
Number of cesspools (concrete)	132	139	146
Number of cesspools cleaned	Above cleaned daily.		
Number of new cesspools constructed during the year ...	1	7	7
Number of old cesspools abolished	*Nil*	*Nil*	1
Number of cesspools oiled regularly by Department	*Nil*	*Nil*	*Nil*

9.—REMOVAL OF REFUSE.

	1918.	1919.	1920.
Number of dustbins	400	400	400
Number of carts at work daily to remove refuse from streets	4	4	4
Amount of refuse removed daily	40	40	40
Number of carts at work daily to remove refuse from yards and premises	10	10	10
Amount of refuse removed daily from yards and premises ...	36	36	36
Number of men employed for removing refuse	34	34	34

TABLE IV.—*continued.*

10.—MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of slaughter-house and market offal.		
	1918.	1919.	1920.	1918.	1919.	1920.	1918.	1919.	1920.
Buried or trenched	674	679	679	22	22	22	1	1	1
Burnt	*Nil*	*Nil*	*Nil*	9	...	9	*Nil*	*Nil*	*Nil*
Thrown into sea	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*
Otherwise dealt with	*Nil*	*Nil*	*Nil*	31	*Nil*	*Nil*	1	*Nil*	*Nil*

11.—AVERAGE DAILY NUMBER OF CARTLOADS OF CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

1918.	1919.	1920.
3	3	3

12.—WATER SUPPLY.

Nature of Water Supply.	1918.	1919.	1920.
Pipe-borne water :—			
Source (river, lake or spring)—	Lake	Lake	Lake
Number of linear yards	12,543	12,600	12,600
Number of standpipes along roads	11	11	11
Number of standpipes in compounds and houses ...	81	82	82
Wells :—			
Public—			
Number	*Nil*	*Nil*	*Nil*
Number with pumps protected against surface water and mosquito-protected			
Private—			
Number			
Number with pumps protected against surface water and mosquito-protected			
Tanks :—			
Public—			
Number underground	...	...	...
Number mosquito-protected and served by pumps ...	...	...	...
Number above ground	...	...	...
Number mosquito-protected	...	...	...
Number of 400 gallons capacity or less	...	...	...
Number above 400 gallons	...	...	...
Private—			
Number underground	*Nil*	*Nil*	*Nil*
Number mosquito-protected			
Number above ground	195	195	195
Number mosquito-protected	Practically none satisfactory.		
Number of 400 gallons capacity or less	64	64	64
Number above 400 gallons	131	131	131
Nature of Tanks :—			
Wood	*Nil*	*Nil*	*Nil*
Iron	81	81	81
Concrete	114	114	114
Barrels :—			
Number	*Nil*	*Nil*	*Nil*
Number mosquito-protected			

TABLE IV.—*continued.*

13.—DRAINAGE.

	Public.	Private.
Masonry Drains :—		
Linear yards of masonry drains—		
1918	6,260 (?)	267 (?)
1919	*Nil*	*Nil*
1920	110	*Nil*
Linear yards reconstructed during the year—		
1918	*Nil*	*Nil*
1919	1,916	*Nil*
1920	*Nil*	*Nil*
Linear yards repaired during the year—		
1918	*Nil*	*Nil*
1919	500	*Nil*
1920	70	*Nil*
Linear yards of new drains constructed during the year—		
1918	*Nil*	*Nil*
1919	4,726	*Nil*
1920	20	*Nil*
Earth drains or ditches cleansed :—		
Number of linear yards of ditches cleansed—		
1918	40,000	*Nil*
1919	40,000	*Nil*
1920	40,000	*Nil*
Number of linear yards of ditches dug and graded—		
1918	*Nil*	*Nil*
1919	1,986	*Nil*
1920	3,600	*Nil*
Average frequency of clearing ditches of grass—		
1918	Monthly	Monthly
1919	,,	,,
1920	,,	,,

14.—CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1918.	1919.	1920.
Number of square yards of weeds, grass and vegetation cut and removed	90,000	90,000	90,000
Average frequency of clearance of rank vegetation on same area	Quarterly	Quarterly	Quarterly

15.—EXCAVATIONS OF LOW-LYING LAND.

	1918.	1919.	1920.
Number of pools and excavations	1	*Nil*	*Nil*
Number of excavations filled up...	*Nil*	*Nil*	*Nil*
Amount of low-lying and marsh land raised and drained ...	*Nil*	*Nil*	*Nil*
Number of pools, marshes, etc., fish-stocked	*Nil*	*Nil*	*Nil*
Number of cubic yards of material used for filling up pools and excavations	300	*Nil*	*Nil*
Number of persons fined for making new excavations... ...	*Nil*	*Nil*	*Nil*
Average number of men daily employed in filling up pools, etc.	6	*Nil*	*Nil*

TABLE IV.—*continued.*

16.—OILING.

	1918.	1919.	1920.
Number of drains oiled	*Nil*	*Nil*	2
Number of pools and excavations oiled	*Nil*	*Nil*	3
Number of tanks and barrels oiled	*Nil*	*Nil*	*Nil*
Average number of men daily employed for oiling drains, pools and water-tanks or barrels	*Nil*	*Nil*	2 when required.

17.—INSPECTIONS AND PROSECUTIONS.

	1918.	1919.	1920.
Number of Inspectors employed...	1	1	1
Number of houses inspected	14,010	9,824	3,367
Number of houses where larvæ were found	1	*Nil*	1
Number of notices served to remove conditions causing the breeding of larvæ	*Nil*	7	3
Number of persons fined for having mosquito larvæ on premises	*Nil*	*Nil*	1
Number of notices served to remove insanitary conditions on premises	53	183	123
Number of persons fined for not removing insanitary conditions after notice	*Nil*	15	3
Number of soda and aerated water factories inspected	1	1	1

TABLE V.

METEOROLOGICAL RETURN FOR THE YEAR 1920.

KABETE FARM, NAIROBI.

Month.	Temperature.						Rainfall.		Winds.		Remarks.
	Solar Maximum.	Maximum on Grass.	Shade Maximum.	Shade Minimum.	Range.	Max. and Min. Mean. combined.	Amount in inches.	Degree of Humidity.	General Direction.	Average Force.	
								%			
January ...			78·0	48·0	30·0	63·0	1·74	71			
February ...			81·0	47·0	34·0	64·0	0·10	58			
March ...			77·0	53·0	24·0	65·0	18·85	74			
April ...			70·0	55·0	15·0	62·5	13·87	89			
May	No observations.	No observations.	72·0	52·0	20·0	62·0	5·86	90	No observations.	No observations.	
June			67·0	50·0	17·0	58·5	0·74	96			
July			66·0	50·0	16·0	58·0	0·13	83			
August ...			70·0	49·0	21·0	59·5	0·16	87			
September ...			80·0	54·0	26·0	67·0	0·81	76			
October ...			83·0	61·0	22·0	72·0	2·89	78			
November ...			78·0	57·0	21·0	67·5	7·20	85			
December ...			71·0	49·0	22·0	60·0	7·40	81			
Year Mean ...	—	—	74·0	52·0	22·3	63·0	Total 59·75	80	—	—	

TABLE V.—*continued.*

METEOROLOGICAL RETURN FOR THE YEAR 1920—*continued.*

Mombasa.

Month.	Temperature.						Rainfall.		Winds.		Remarks.
	Solar Maximum.	Maximum on grass.	Shade Maximum.	Shade Minimum.	Range.	Max. and Min. Mean combined.	Amount in inches.	Degree of Humidity.	General Direction.	Average Force.	
								%			
January ...	No observations.	No observations.	85·0	72·0	13·0	78·5	0·95	72	No observations.	No observations.	
February ...			86·0	72·0	14·0	79·0	0·03	67			
March ...			87·0	74·0	13·0	80·5	0·32	68			
April... ...			85·0	72·0	13·0	78·5	15·50	82			
May			86·0	70·0	16·0	78·0	14·51	86			
June			83·0	68·0	15·0	75·5	2·33	80			
July			79·0	68·0	11·0	73·5	5·71	81			
August ...			80·0	68·0	12·0	74·0	1·07	78			
September ...			87·0	68·0	19·0	77·5	2·22	75			
October ...			87·0	69·0	18·0	78·0	9·40	76			
November ...			88·0	72·0	16·0	80·0	1·25	77			
December ...			88·0	71·0	17·0	79·5	1·99	74			
Year Mean ...	—	—	85·0	70·0	15·0	77·7	Total 55·28	76	—	—	

Kisumu.

Month.	Temperature.						Rainfall.		Winds.		Remarks.
	Solar Maximum.	Maximum on grass.	Shade Maximum.	Shade Minimum.	Range.	Max. and Min. Mean combined.	Amount in inches.	Degree of Humidity.	General Direction.	Average Force.	
								%			
January ...	No observations.	No observations.	85·0	65·0	20·0	75·0	0·51	84	No observations	No observations.	
February ...			85·0	66·0	19·0	75·5	1·52	66			
March ...			82·0	66·0	16·0	74·0	4·51	80			
April... ...			78·0	63·0	15·0	70·5	8·84	76			
May			80·0	63·0	17·0	71·5	6·53	82			
June			77·0	62·0	15·0	69·5	2·50	84			
July			81·0	63·0	18·0	72·0	1·52	79			
August ...			82·0	62·0	20·0	72·0	1·79	75			
September ...			84·0	62·0	22·0	73·0	1·95	82			
October ...			84·0	62·0	22·0	73·0	2·59	85			
November ...			85·0	64·0	21·0	74·5	6·38	77			
December ...			85·0	63·0	22·0	74·0	3·01	58			
Year Mean...	—	—	82·0	63·0	19·0	72·8	Total 41·65	77	—	—	

TABLE V.—*continued.*

METEOROLOGICAL RETURN FOR THE YEAR 1920—*continued.*

Fort Hall.

Month.	Temperature.						Rainfall.		Winds.		Remarks
	Solar Maximum.	Maximum on grass.	Shade Maximum.	Shade Minimum.	Range.	Max. and Min. Mean combined.	Amount in inches.	Degree of Humidity.	General Direction.	Average Force.	
January ...	No observations.	No observations.	85·0	54·0	31·0	69·5	0·29	57	No observations.	No observations.	
February ...			97·0	61·0	36·0	79·0	0·00	73			
March ...			102·0	61·0	41·0	81·5	9·61	83			
April... ...			84·0	65·0	19·0	74·5	16·32	76			
May			80·0	63·0	17·0	71·5	3·61	79			
June			80·0	64·0	16·0	72·0	1·77	81			
July			80·0	62·0	18·0	71·0	0·68	84			
August ...			79·0	61·0	18·0	70·0	0·00	100			
September ...			84·0	45·0	39·0	64·5	0·35	—			
October ...			87·0	46·0	41·0	66·5	2·95	—			
November ...			87·0	47·0	40·0	67·0	7·45	—			
December ...			88·0	50·0	38·0	69·0	3·66	—			
Year Mean ...	—	—	86·0	56·0	29·5	71·3	Total. 46·72	—	—	—	

TABLE VI.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1920.

DISEASES.	EUROPEAN OFFICIALS.					NATIVE OFFICIALS.					GENERAL EUROPEAN POPULATION.					GENERAL NATIVE POPULATION.				
	Remaining in Hospital at end of 1919.	Yearly Total. Admissions.	Yearly Total. Deaths.	Total cases treated.	Remaining in Hospital at end of 1920.	Remaining in Hospital at end of 1919.	Yearly Total. Admissions.	Yearly Total. Deaths.	Total cases treated.	Remaining in Hospital at end of 1920.	Remaining in Hospital at end of 1919.	Yearly Total. Admissions.	Yearly Total. Deaths.	Total cases treated.	Remaining in Hospital at end of 1920.	Remaining in Hospital at end of 1919.	Yearly Total. Admissions.	Yearly Total. Deaths.	Total cases treated.	Remaining in Hospital at end of 1920.
INFECTIVE DISEASES:																				
Beri-beri	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	41	58	2	99	6
Cerebro-spinal fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	51	33	52	1
Chicken-pox	...	1	...	1	...	...	2	...	2	...	...	3	...	3	...	6	656	...	662	22
Cholera	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dengue	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria	...	3	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dysentery	...	8	...	8	...	2	90	1	92	...	...	14	...	14	1	13	398	38	411	9
Endocarditis Infective	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric	...	4	...	4	1	...	...	...	...	...	...	16	...	16	2	...	8	...	8	2
Erysipelas	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	...
Gonorrhoea	...	1	...	1	...	...	57	...	57	3	...	...	...	...	...	15	279	...	294	18
Influenza	1	83	...	84	...	1	615	...	616	13	...	63	3	63	...	30	1337	40	1367	39
Kala Azar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Leprosy (*a*) Nodular	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	13	2	19	5
(*b*) Anæsthetic	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	4	...	6	2
Malaria (*a*) Tertian	3	122	...	125	1	23	1150	1	1173	10	1	156	...	157	5	29	1727	32	1756	17
(*b*) Quartan	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	17	3	17	1
(*c*) Æstivo-autumnal	1	41	...	42	1	6	534	2	540	6	2	22	3	24	...	18	1406	5	1424	22
(*d*) Chronic malaria	...	...	...	...	...	...	21	...	21	...	...	1	...	1	...	2	48	3	50	...
(*e*) Blackwater	...	...	...	...	...	...	5	...	5	...	...	4	2	4	...	...	3	2	3	...
Measles	...	...	...	...	...	...	...	...	...	...	...	7	...	7	...	...	8	...	8	...
Malta fever	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	41	232	130	273	5
Pneumonia	1	6	2	7	...	...	24	3	24	1	...	10	1	10	...	...	1012	280	1012	38
Rabies	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Relapsing fever	...	1	...	1	...	...	3	...	3	...	...	1	...	1	...	1	30	1	31	2
Rheumatic fever	...	6	...	6	...	1	120	...	121	2	...	9	...	9	1	7	259	3	266	5
Septicæmia	...	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...	11	10	11	...
Trypanosomiasis (Sleeping sickness)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	10	4	11	4
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18	39	5	57	1
Syphilis (*a*) Primary	...	...	...	...	...	...	3	...	3	...	...	...	...	...	...	17	335	...	352	16
(*b*) Secondary	...	1	...	1	...	...	6	...	6	...	...	...	...	...	...	7	202	7	209	15
(*c*) Inherited	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	11	2	16	1
Tetanus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	11	5	12	...
Tuberculosis	...	1	...	1	1	...	3	...	3	...	...	10	1	10	...	5	92	41	97	5
Whooping cough	...	...	...	...	...	...	...	...	...	...	...	7	...	7	1	...	...	...	...	...
Yaws	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	12	199	1	211	26
Yellow fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mumps	...	...	...	...	...	...	3	..	3	...	...	1	...	1	...	4	140	...	144	4
Anthrax	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	29	2	33	4
Other Infective Diseases	...	9	...	9	1	1	...	...	1	...	...	3	...	3	...	4	1	...	5	...
INTOXICATIONS:																				
Alcoholism	...	2	...	2	...	...	...	...	...	...	...	3	...	3	1	...	...	...	...	...
Morphinism	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Others	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
GENERAL DISEASES:—																				
Anæmia	...	...	...	...	...	...	3	...	3	...	...	1	...	1	...	3	53	7	56	2
Anæmia—Pernicious	...	...	...	...	...	...	2	...	2	...	...	1	...	1	...	...	1	1	1	...
Diabetes	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	2	...	2	...
Exophthalmic goitre	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gout	...	3	...	3	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Leucocythæmia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hodgkin's disease	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Myxœdema	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Purpura	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rickets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scurvy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	...	6	1
Other General Diseases	1	21	...	22	1	...	45	...	45	1	2	36	2	38	...	3	136	5	139	6
LOCAL DISEASES:																				
Diseases of the Nervous System:—																				
Sub-section 1.																				
Neuritis	...	1	...	1	...	...	2	...	2	...	...	3	...	3	...	...	9	...	9	...
Meningitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	1	3	...
Myelitis	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	1	1	1	...
Hydrocephalus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Encephalitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...
Abscess of brain	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...
Congestion of brain	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases	...	1	...	1	2	...	1	...	1	...	...	2	...	2	1	...	10	...	10	...
Sub-section 2.																				
Apoplexy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	4	5	...
Paralysis	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	5	19	2	24	6
Chorea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...
Epilepsy	...	...	...	...	...	...	1	...	1	...	...	3	...	3	...	...	13	...	13	1
Neuralgia	...	8	...	8	...	...	58	...	58	...	...	6	...	6	...	...	70	...	70	1
Hysteria	...	1	...	1	...	...	...	...	...	...	...	4	...	4	...	...	3	...	3	...
Other Nervous Diseases	...	8	...	8	...	1	22	1	23	3	...	16	...	16	1	1	29	1	30	4
Mental Diseases—																				
Sub-section 3.																				
Idiocy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	2	2
Mania	...	...	...	...	...	...	3	...	3	1	3	2	...	5	4	39	44	9	83	33
Melancholia	...	...	...	...	...	...	1	...	1	...	...	2	...	2	...	1	4	...	5	1
Dementia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18	16	3	34	15
Delusional insanity	...	1	...	1	...	...	...	...	...	...	1	3	...	4	...	8	17	5	25	9
Other Mental Diseases	1	...	...	1	...	...	2	...	2	...	1	11	1	12	2	6	20	5	26	7

Table VI.—Return of Diseases and Deaths (In-Patients) for the Year 1920—(*contd.*).

Diseases.	European Officials.					Native Officials.					General European Population.					General Native Population.				
	Remaining in Hospital at end of 1919.	Yearly Total.		Total cases treated.	Remaining in Hospital at end of 1920.	Remaining in Hospital at end of 1919.	Yearly Total.		Total cases treated.	Remaining in Hospital at end of 1920.	Remaining in Hospital at end of 1919.	Yearly Total.		Total cases treated.	Remaining in Hospital at end of 1920.	Remaining in Hospital at end of 1919.	Yearly Total.		Total cases treated.	Remaining in Hospital at end of 1920.
		Admissions.	Deaths.				Admissions.	Deaths.				Admissions.	Deaths.				Admissions.	Deaths.		
Local Diseases—*continued*:—																				
Diseases of the Eye—																				
Conjunctivitis	...	4	...	4	...	...	66	...	66	...	...	5	...	5	...	3	138	...	141	6
Keratitis	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	10	...	10	...
Ulceration of cornea	...	...	...	...	...	...	4	...	4	...	...	...	...	...	...	1	16	...	17	1
Iritis	...	1	...	1	...	...	3	...	3	1	...	...	...	...	...	...	9	...	9	...
Optic neuritis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cataract	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	1
Other Eye Diseases	...	2	...	2	...	...	25	...	25	1	...	8	...	8	...	1	34	...	35	2
Diseases of the Ear:—																				
Inflammation	...	2	...	2	...	...	6	...	6	...	...	1	...	1	..	...	20	...	20	...
Other Diseases	...	1	...	1	...	...	9	...	9	...	...	...	...	..	...	...	8	1	8	...
Diseases of the Nose	...	19	...	19	...	...	186	...	186	...	...	4	...	4	...	...	26	...	26	...
Diseases of the Circulatory System:—																				
Pericarditis	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	1	1	1	...
Endocarditis	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Valvular, Mitral	...	...	...	...	...	...	...	...	...	...	...	3	2	3	...	1	2	...	3	1
,, Aortic	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...
,, Tricuspid	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
,, Pulmonary	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Arterial sclerosis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aneurism	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases	...	1	...	1	...	...	5	1	5	...	...	5	...	5	...	...	14	5	14	1
Diseases of the Respiratory System:—																				
Laryngitis	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...	1	8	1	9	...
Bronchitis	...	18	...	18	...	1	220	...	221	3	...	24	...	24	...	24	748	3	772	21
Broncho-pneumonia	...	...	...	...	...	1	4	1	5	...	...	6	3	6	...	2	66	14	68	1
Abscess of lung	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gangrene of lung	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...
Emphysema	...	...	...	...	...	...	...	...	...	...	...	2	2	2	...	1	...	...	1	...
Pleurisy	...	1	...	1	1	1	1	...	2	...	...	4	1	4	...	2	26	3	28	3
Empyema	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	2	3	1
Other Respiratory Diseases	...	3	...	3	...	...	59	...	59	2	...	15	...	15	1	1	48	1	49	1
Diseases of the Digestive System:—																				
Stomatitis	...	...	...	...	...	...	4	...	4	...	...	1	...	1	...	...	16	...	16	...
Caries of teeth	...	3	..	3	...	...	31	...	31	1	...	7	...	7	...	1	4	...	5	...
Glossitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sore throat	...	3	...	3	...	2	9	...	11	...	...	...	...	...	...	...	25	...	25	...
Inflammation of tonsils	...	24	...	25	...	...	31	...	31	...	...	24	...	24	1	...	39	...	39	...
Gastritis	...	12	...	13	1	1	15	...	16	...	...	16	...	16	...	...	14	...	14	...
Ulceration of stomach	...	...	...	...	...	...	1	1	1	...	...	...	...	...	..	..	1	...	1	...
Hæmatemesis	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	1	2	...	3	...
Dilatation of stomach	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Stricture of stomach	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dyspepsia	...	2	...	2	...	...	46	...	46	2	...	3	...	3	1	...	22	...	22	...
Enteritis	...	5	...	5	1	...	1	...	1	...	...	8	1	8	...	...	11	1	11	...
Appendicitis	...	2	...	2	...	...	1	...	1	...	1	8	...	9	...	...	2	1	2	...
Colitis	...	1	...	1	...	...	5	...	5	...	1	2	...	3	...	...	3	1	3	...
Ulceration of intestines	...	2	...	2	...	...	...	...	...	...	...	7	...	7	...	...	...	...	...	...
Sprue	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	2	...
Hernia	...	...	...	...	...	...	...	...	...	1	...	2	...	2	...	...	17	2	17	2
Diarrhœa	...	16	...	16	...	...	125	...	125	...	...	20	...	20	...	8	479	14	487	9
Constipation	...	1	...	1	...	1	39	...	40	1	...	6	...	6	...	1	46	...	47	...
Colic	...	4	...	4	...	...	52	...	52	1	...	9	...	9	...	1	108	...	109	1
Hæmorrhoids	...	6	...	6	...	..	21	...	21	1	...	2	...	2	...	...	7	...	7	...
Pancreatitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...
Hepatitis (Acute)	1	10	...	11	...	...	9	...	9	...	...	7	...	7	...	2	18	...	20	1
Abscess	...	1	...	1	...	...	...	...	...	...	...	10	...	10	...	...	14	3	14	1
Cirrhosis	...	...	...	...	...	...	...	...	...	...	...	2	1	2	...	...	7	3	7	1
Jaundice	...	1	...	1	...	...	1	...	1	...	...	4	...	4	...	...	10	1	10	...
Peritonitis	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	5	2	3	...
Ascites	3	...	...	3	...	...	...	...	...	...	...	...	...	...	...	1	9	3	10	...
Other Diseases	...	4	...	4	...	...	23	...	23	...	...	4	...	4	...	2	37	5	39	...
Diseases of the Lymphatic System:—																				
Splenitis	...	...	...	...	...	...	8	...	8	...	...	..	...	...	...	...	19	...	19	1
Inflammation of lymphatic gland	...	1	...	1	...	...	10	...	10	...	...	4	...	4	...	2	106	1	108	16
Suppuration of lymphatic gland	...	...	...	...	...	...	1	...	1	1	...	1	...	1	...	2	31	...	33	...
Lymphangitis	...	2	...	2	...	...	2	...	2	...	...	1	...	1	...	...	...	...	...	..
Elephantiasis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	1	5	...
Other Diseases	...	1	...	1	...	...	2	...	2	...	...	...	...	...	...	1	3	...	4	...
Diseases of the Urinary System:—																				
Acute nephritis	...	...	...	...	...	...	1	...	1	...	...	1	...	1	...	...	15	...	15	...
Bright's disease	...	2	1	2	...	...	...	...	...	...	...	2	1	2	...	...	12	6	12	1
Pyelitis	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...
Calculus	...	...	...	...	...	...	1	...	1	...	...	1	..	1	...	...	6	...	6	...
Renal colic	...	...	..	..	...	...	1	...	1	...	...	1	...	1	...	...	2	...	2	...
Cystitis	...	2	...	2	...	...	...	...	...	...	...	5	...	5	...	...	2	...	2	...
Vesical calculus	..	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...
Suppression	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hæmaturia	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	1	...	1	...
Chyluria	...	..	...	...	..	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...
Other Diseases	...	...	...	...	...	..	2	.	2	...	...	3	3	3	...	...	14	1	14	3

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Local Diseases—*continued*—																				
Diseases of the Genetative System :—																				
Male Organs :—																				
Urethritis	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	1	...	1	...
Gleet	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	3	...	3	...
Stricture	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22	1	22	1
Prostatitis	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	9	...	...	9	...
Soft chancre	2	2	...	4	...	...	...	...	...	...	...	...	...	...	...	...	79	...	79	3
Condyloma	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	...	6	1
Inflammation of scrotum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	...	5	...
Hydrocele	..	1	...	1	...	...	...	...	...	...	...	1	...	1	...	...	9	...	9	...
Orchitis	...	1	...	1	...	...	8	...	8	..	...	3	...	3	1	3	56	...	59	3
Epididymitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	...	6	...
Abscess of testicles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases	...	...	...	...	...	...	...	...	...	...	...	4	...	4	...	1	34	3	35	1
Female Organs :—																				
Ovaritis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
Ovarian cyst	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endometritis	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	1	...	1	...
Displacement of uterus	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Vaginitis	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Amenorrhœa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dysmenorrhœa	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Menorrhagia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...
Leucorrhœa	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	1	1	...	2	...
Abortion	...	...	...	...	...	...	...	...	...	...	...	5	..	5	1	...	6	...	6	1
Delayed labour	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	10	1	10	1
Post-partem hæmorrhage	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	1	...	1	...
Retained placenta	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	4	2	4	...
Premature birth	...	...	...	...	...	...	...	...	...	...	...	4	...	4	...	...	...	...	...	...
Puerperal septicæmia	...	...	...	...	...	..	...	...	...	...	...	1	...	1	...	...	4	3	4	...
Mastitis	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...
Abscess of breast	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
Other Diseases	...	3	...	3	...	...	...	...	...	...	...	23	...	23	...	...	13	5	13	...
Diseases of the Organs of Locomotion :—																				
Osteitis	...	1	...	1	...	...	...	...	...	...	...	1	...	1	...	1	20	...	21	1
Arthritis	...	...	...	...	...	1	3	...	4	...	...	2	...	2	...	7	51	...	58	...
Spondylitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Bursitis	...	1	...	1	...	...	1	...	1	...	...	2	...	2	...	...	2	...	2	...
Other Diseases	...	7	...	7	...	...	110	...	110	2	1	6	...	7	...	4	159	2	163	10
Diseases of the Connective Tissue :—																				
Cellulitis	...	6	...	6	...	...	13	...	13	1	1	21	...	22	1	10	182	1	192	7
Abscess	1	7	...	8	...	2	37	...	39	...	1	...	...	1	...	11	228	...	239	12
Elephantiasis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases	...	...	...	...	...	...	14	...	14	1	...	3	...	3	...	9	178	1	187	25
Diseases of the Skin :—																				
Urticaria	...	...	...	...	...	...	5	...	5	...	...	1	...	1	...	...	7	...	7	...
Eczema	..	...	...	...	...	...	14	...	14	...	...	3	...	3	...	1	16	...	17	...
Boil	...	1	...	1	...	1	29	..	30	...	...	9	...	9	...	...	52	...	52	...
Carbuncle	...	1	...	1	...	...	2	...	2	1	...	1	...	1	...	...	...	...	...	...
Herpes	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...
Psoriasis	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oriental sore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	3	...
Tinea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	...
Scabies	...	...	...	...	...	...	28	...	28	...	...	2	...	2	...	1	103	...	104	8
Acne	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Prickly heat	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases	...	2	...	2	...	...	4	...	4	...	...	8	...	8	1	11	161	...	172	24
Injuries—General	1	5	...	6	...	...	2	...	2	...	...	3	1	3	...	9	55	5	64	...
Local	3	37	...	40	...	1	336	...	337	9	...	64	2	64	1	84	2516	31	2600	113
Gun-shot Wounds	1	1	...	2	...	...	...	...	...	...	2	4	1	6	...	...	1	...	1	...
Surgical Operations *	...	15	...	15	2	...	2	...	2	...	8	60	1	68	1	8	227	...	235	...
Tumours	...	2	1	2	...	...	...	...	...	...	...	4	...	4	1	3	22	...	25	1
Malformations	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poisons	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25	4	25	...
Parasites—Animal	...	1	..	1	...	...	13	...	13	...	...	1	...	1	...	...	19	...	19	1
Protozoa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trematoda (Flukes)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
Cestoda—																				
Tænia solium	...	1	...	1	...	...	...	...	...	...	...	3	...	3	...	...	34	1	34	...
Tænia saginata	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	3	1	3	...
Nematoda—																				
Ascaris	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	1	5	..
Tricocephalus dispar	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Trichina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dracunculus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Filariasis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Strongylus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	4	...
Ankylostomiasis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
Oxyuris	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2	59	16	61	4
Insecta—																				
Myiasis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
Other Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	...
	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	1	...	1	1
Total	22	574	4	611	11	47	4439	12	4486	69	17	858	31	875	29	607	15789	861	16404	653

* Recorded under respective diseases.

TABLE VII.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1920.

DISEASES.	EUROPEAN OFFICIALS.		NATIVE OFFICIALS.		GENERAL EUROPEAN POPULATION.		GENERAL NATIVE POPULATION.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Infective Diseases:—								
Beri-beri	...	...	...	...	...	...	2	...
Cerebro-spinal fever	...	...	...	...	...	...	9	...
Chicken-pox	...	...	...	...	7	2	205	2
Cholera	...	...	...	...	...	...	...	...
Dengue	...	...	...	...	...	...	...	...
Diphtheria	...	...	...	...	...	...	...	...
Dysentery	1	...	9	...	2	1	560	68
Endocarditis—Infective	...	...	...	...	...	...	...	...
Enteric fever	...	...	...	...	...	...	...	...
Erysipelas	...	...	...	...	...	...	1	...
Gonorrhœa	2	...	9	...	9	...	906	21
Influenza	12	...	54	...	16	9	2,297	306
Kala Azar	...	...	...	...	...	...	...	...
Leprosy (*a*) Nodular	...	...	...	...	...	...	4	1
(*b*) Anæsthetic	...	...	...	...	...	...	3	...
Malaria (*a*) Tertian	44	1	271	...	20	3	4,347	597
(*b*) Quartan	1	...	1	...	...	1	1,355	20
(*c*) Æstivo-autumnal	11	...	196	...	8	9	5,094	901
(*d*) Chronic malaria	1	...	...	...	1	...	100	20
(*e*) Blackwater	...	...	...	...	..	...	...	1
Measles	...	...	...	...	...	...	2	2
Malta fever	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	12	4
Pneumonia	...	...	1	...	1	1	157	18
Rabies	...	...	...	...	...	...	...	...
Relapsing fever	...	...	...	...	...	...	16	...
Rheumatic fever	4	...	47	...	5	3	1,498	163
Septicæmia	...	...	...	...	...	...	4	1
Trypanosomiasis (Sleeping Sickness)	...	...	...	...	...	...	...	...
Small-pox	...	...	...	...	...	...	8	...
Syphilis (*a*) Primary	4	...	1	...	...	...	454	33
(*b*) Secondary	1	...	1	...	...	...	455	135
(*c*) Inherited	...	...	...	...	...	...	38	21
Tetanus	...	...	...	...	...	...	2	1
Tuberculosis	1	...	...	...	...	...	130	17
Whooping cough	...	...	...	...	2	2	44	14
Yaws	...	...	...	...	...	...	278	180
Yellow fever	...	...	...	...	...	...	...	...
Mumps	...	...	...	...	...	...	45	...
Anthrax	...	...	...	...	...	...	...	...
Other Infective Diseases	1	...	...	...	...	...	22	...
Intoxications:—								
Alcoholism	...	...	...	...	1	...	...	...
Morphinism	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...
General Diseases:—								
Anæmia	3	...	36	...	6	5	306	89
Anæmia—Pernicious	...	...	...	...	...	...	1	...
Diabetes	...	...	...	...	...	...	5	2
Exophthalmic Goitre	...	...	...	...	...	...	...	...
Gout	2	...	...	...	...	...	9	...
Leucocythæmia	...	...	...	...	...	...	...	...
Hodgkin's Disease	...	...	...	...	...	...	...	...
Myxœdema	1	...	...	...	...	...	...	...
Purpura	...	...	...	...	...	...	...	...
Rickets	...	...	...	...	...	...	2	...
Scurvy	...	...	...	...	...	...	92	2
Other General Diseases	29	1	83	..	9	6	448	54
Local Diseases:—								
Diseases of the Nervous System	31	9	94	...	10	6	2,965	228
Mental Diseases	...	...	...	...	1	1	13	2
Diseases of the Eye	9	...	58	...	9	2	2,483	747
,, ,, Ear	15	1	31	...	11	2	1,248	176
,, ,, Nose	15	...	127	...	5	2	817	52
,, ,, Circulatory System	3	...	2	...	3	...	33	4
,, ,, Respiratory System	43	2	304	...	26	9	14,512	1,250
,, ,, Digestive System	194	6	503	...	89	64	13,232	2,023
,, ,, Lymphatic System	3	...	10	...	3	1	766	83
,, ,, Urinary System	5	...	1	...	2	...	88	7
,, ,, Generative System	11	2	10	...	14	11	485	161
,, ,, Organs of Locomotion	9	...	46	...	3	2	2,674	181
,, ,, Connective Tissue	10	...	24	...	7	4	2,369	201
,, ,, Skin	30	1	116	...	31	7	7,462	1,203
Injuries:—								
General	15	...	7	...	...	...	542	
Local	79	1	207	...	65	16	24,544	3,322
Gun-shot wounds	...	...	...	...	...	...	...	...
Surgical Operations*	(3)	...	(3)	...	(1)	...	(165)	(89
Tumours	...	...	...	...	2	...	23	9
Malformations	...	...	...	...	...	...	2	...
Poisons	...	...	1	...	1	..	34	3
Parasites—Animal	4	...	11	...	2	1	1,391	658
TOTAL	594	24	2,261	...	371	170	94,544	12,936

* Recorded under respective Diseases.

TABLE VIII.

EUROPEANS.

RETURN OF INFECTIVE DISEASES TREATED AT THE VARIOUS HOSPITALS AND DISPENSARIES IN KENYA COLONY & PROTECTORATE DURING 1920.

DISEASES.		Mombasa.	Voi.	Malindi.	Lamu.	Lolleshid.	Moyale.	Serenli.	Kismayu.	Gobwen.	Kisumu.	Kericho.	Kakamega.	Kisii.	Nandi.	Fort Hall.	Embu.	Kitui.	Nyeri.	Nairobi.	Makindu.	Machakos.	Kyambu.	Nakuru.	Naivasha.	Eldama Ravine.	Rumuruti.	Eldoret.	Kacheliba	Londiani.	Total.
Chicken-pox	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	10	...	...	13
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Dysentery	Cases	6	1	...	...	1	1	...	...	...	2	...	...	...	...	...	1	...	...	11	...	...	...	2	1	...	...	...	...	...	26
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Enteric Fever	Cases	2	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	7	...	...	...	4	1	1	1	...	1	...	20
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Influenza	Cases	25	...	...	...	...	1	...	4	...	18	...	...	...	1	...	...	...	25	69	...	...	...	20	3	6	...	10	...	1	183
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...	3
Leprosy	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Malaria	Cases	140	13	1	2	2	...	1	3	4	34	3	4	5	...	1	...	6	30	129	9	3	...	27	6	3	...	12	3	1	442
	Deaths	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Blackwater Fever	Cases	2	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	4
	Deaths	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	2
Measles	Cases	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	7
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Malta Fever	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Plague	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Pneumonia	Cases	3	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	8	1	...	...	1	...	1	...	2	...	1	18
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	3
Small-pox	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Tuberculosis	Cases	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	...	...	...	2	...	...	...	...	...	...	12
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Mumps	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—

N.B.—This Table only gives the numbers *actually* treated at Government Institutions.

TABLE VIII.

NATIVES (INCLUDING ASIATICS).

RETURN OF INFECTIVE DISEASES TREATED AT THE VARIOUS HOSPITALS AND DISPENSARIES IN KENYA COLONY & PROTECTORATE DURING 1920.

DISEASES.		Mombasa.	Malindi.	Voi.	Lamu.	Kisumayu.	Gobwen.	Lolleshid.	Moyale.	Marsabit.	Serenli.	Kisumu.	Kericho.	Kakamega.	Kisii.	Fort Hall.	Meru.	Nyeri.	Kitui.	Naudi.	Embu.	Nairobi.	Makindu.	Machakos.	Kyambu.	Nakuru.	Naivasha.	Eldama Ravine.	Londiani.	Rumuruti.	Eldoret.	Kacheliba.	Total.
Beri-beri	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	49	...	...	...	1	...	4	...	...	...	60
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	2
Cerebro-spinal meningitis	Cases	7	...	...	...	1	...	...	...	...	...	6	...	...	1	4	...	...	...	...	...	35	...	...	1	1	...	3	...	...	...	1	60
	Deaths	6	...	...	...	1	...	...	...	...	...	4	...	...	1	3	...	...	...	...	...	13	...	...	...	1	...	3	...	...	...	1	33
Chicken-pox	Cases	34	...	18	...	...	...	...	...	...	...	56	14	1	38	1	14	2	...	1	...	429	...	...	48	128	20	17	37	...	2	5	865
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Dysentery	Cases	121	20	31	62	16	7	10	46	...	34	88	26	3	...	1	7	9	7	2	9	297	23	26	6	174	10	23	15	...	31	21	1,125
	Deaths	10	...	...	...	2	1	...	...	...	...	1	...	...	...	...	1	1	...	...	...	8	4	...	...	7	...	2	2	...	...	...	39
Enteric fever	Cases	2	...	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	1	8
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Influenza	Cases	830	27	37	...	63	56	...	108	...	...	118	324	320	...	64	...	57	...	20	9	973	12	...	20	432	69	622	...	...	369	79	4,609
	Deaths	12	...	1	...	2	...	...	...	...	...	4	...	...	...	1	...	2	...	...	...	5	...	..	...	...	...	...	...	...	12	1	40
Leprosy	Cases	5	...	...	...	2	...	...	1	...	...	5	...	...	...	1	...	...	...	...	...	9	...	...	...	1	...	1	...	...	...	...	25
	Deaths	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Malaria	Cases	3,250	362	482	1,853	447	1,241	210	181	50	441	1,895	283	264	133	555	349	709	139	119	377	1,952	564	125	99	352	122	100	158	237	251	417	17,717
	Deaths	3	...	...	...	...	...	...	...	...	...	2	...	2	...	6	1	1	...	...	...	21	6	...	1	...	...	1	...	...	2	...	46
Blackwater fever	Cases	3	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	1	1	...	1	...	...	...	...	...	...	9
	Deaths	1	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	2
Measles	Cases	1	...	1	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	1	6	...	...	...	...	...	...	...	...	...	1	12
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Malta fever	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Plague	Cases	133	...	...	...	...	...	...	...	...	...	44	...	13	6	...	...	...	...	...	...	46	...	...	5	...	...	...	...	...	1	1	249
	Deaths	64	...	...	...	..	...	...	...	...	...	29	...	7	...	...	...	...	...	...	...	25	...	...	3	...	...	...	...	...	1	1	130
Pneumonia	Cases	94	...	32	2	7	3	1	11	...	7	57	6	7	17	27	...	...	9	2	3	499	9	...	24	254	13	82	16	...	23	7	1,212
	Deaths	31	...	...	1	2	...	...	...	...	2	12	1	...	4	3	...	...	5	...	...	138	3	...	3	28	3	35	1	...	10	1	283
Small-pox	Cases	12	...	...	...	4	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25	...	...	1	...	...	3	...	...	...	...	47
	Deaths	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	1	...	...	...	...	5
Tuberculosis	Cases	37	25	...	19	36	8	...	...	...	12	7	2	5	3	2	...	...	3	...	...	65	2	...	2	4	1	4	...	1	1	3	242
	Deaths	20	...	...	...	3	...	...	...	...	1	3	...	...	...	...	...	...	1	...	...	10	...	...	...	...	1	2	...	...	...	...	41
Mumps	Cases	...	...	...	...	...	...	...	...	...	...	...	10	...	1	...	...	...	...	...	1	169	...	...	1	6	...	...	...	...	...	...	188
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Anthrax	Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29	...	...	...	...	...	.	...	...	...	...	29
	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	2

N.B.—This Table only gives the numbers *actually* treated at Government Institutions.

TABLE IX.

STATISTICS REGARDING ENTERIC FEVER AMONG EUROPEAN RESIDENTS IN COLONY AND PROTECTORATE OF KENYA DURING 1920.

Total Number Admitted on Account of Enteric.				Number Admitted who had been Previously Inoculated Against Enteric.		Number of Those who Died.				Total Number Inoculated Against Enteric Fever During the Year.	
						Previously Inoculated.		Not Previously Inoculated.			
Officials.		Non-Officials.		Officials.	Non-Officials.	Officials.	Non-Officials.	Officials.	Non-Officials	Officials	Non-Officials.
Cases.	Deaths.	Cases.	Deaths.								
4	—	16	—	1 (in 1900)	—	—	—	—	—	—	8

The occurrence of the 20 cases was as follows :—

Mombasa	2
Kisumu	3
Nairobi	7
Nakuru	4
Naivasha	1
Eldama Ravine	1
Rumuruti	1
Kacheliba	1
	20

APPENDIX.

TYPHUS IN KENYA COLONY.

By J. L. Gilks, F.R.C.S.Edin., Principal Medical Officer.

During the 7½ years I have been stationed in Nairobi a considerable number of cases (at least 30) of a fever associated with a rash have come under my notice, and as far as I am aware, I have been fortunate enough to see, either in consultation or otherwise, the great majority of the cases which have occurred here. One case has been reported from Nakuru. This fever has now been definitely decided to be typhus, the existence of which had not been previously known in this country, although it has been suspected in Uganda. The importance of the presence of this disease in our midst is my excuse for at once publishing it abroad after what may appear to be only slight investigation; but steps are being taken to ascertain whether, as is almost certain, and to what extent, the disease exists among natives and Indians.

The cases have all been Europeans, my practice not having included Indians or natives, and the patients have all been of the higher social grades and living under comfortable and often almost luxurious conditions. The poor white problem is not yet one with which we are seriously faced.

The disease has presented the following characteristics, and the duration has usually been roughly a fortnight, followed by a considerable amount of prostration.

There appears to be some seasonal variation, in that the cases have occurred more in the cooler than the hotter part of the year.

The onset is rapid, with a feeling of chilliness, the temperature quickly rising to as much as 104 and remaining high with slight variations till it falls by lysis. Slight sore throat is usually noticed, but the chief complaint is of pain in the joints which, in some cases, has become very acute and associated with definite swelling. Intense headache is also complained of. Delirium has not been marked.

About the fourth day of the illness the rash develops, papular and at first very like the rose spots of typhoid, but usually larger. These spots at first fade on pressure but later become darker until finally they become almost petechial and they last several days after the temperature has fallen to normal. The eruption is distributed over the whole body, possibly more thickly over the shins than elsewhere, and appears both on the palms of the hands and the soles of the feet. Previous to the eruption of the typical rash patches of erythema, urticaria, and macular mottling have been observed. The tongue rapidly becomes very foul and dry and the breath offensive. There is nothing in the throat beyond a slight congestion of the fauces. The spleen has been slightly enlarged in most cases. Glands are not affected.

The only complication which has been observed was jaundice in one case several days after the temperature had come down.

Recovery has ensued in all cases but one, which died at the European Hospital, and of which I was enabled to follow the course by the kindness of Dr. H. H. V. Welch. This case, though of a severe type, appeared to be running a favourable course, but after the temperature came down coma ensued and the patient died on the 18th day of the disease.

It was this death which attracted attention to the possible seriousness of this hitherto undiagnosed fever and the close similarity of the temperature chart and the course of the disease to a case described in the article on typhus in the last edition of "Castellani's Tropical Medicine," was pointed out by Dr. Anderson, and a provisional diagnosis of typhus was arrived at.

It may be argued that the description of the cases which I have given is a typical description of typhus of a mild type, but the comparative mildness of the disease in a country like this, where one constantly meets with undifferentiated cases of pyrexia, and the absence of anything like an epidemic has tended to obscure the diagnosis. I myself had imagined that the fever was one akin to Rocky Mountain Spotted Fever, and it is of interest to note that this is by some regarded as a variety of typhus.

As soon as the provisional diagnosis of typhus was arrived at in the case above mentioned a culture of bacillus X·19 was cabled for from South Africa, and we were fortunate enough on the day of its arrival to find another case. The report of the Bacteriologist, Dr. P. A. Clearkin, on the Weil Felix reaction in this case, is as follow:—

"Serum obtained from the patient on the 5th day of the disease gave no agglutination with B. Profits X·19 macroscopically or microscopically even in a dilution of 1 in 10.

"On the 12th day of illness, blood was again obtained from the patient. In this case, dilutions of 1 in 10, 1 in 20, 1 in 40, 1 in 80, and 1 in 160, were put up macroscopically or microscopically.

"Definite agglutination was observed in a dilution of 1 in 20. A further dilution of 1 in 30 was put up and agglutination observed but not so strong as 1 in 20. 1 in 40 still failed to agglutinate.

"The controls were: (1) Normal saline; (2) Normal serum; (3) Serum taken from the patient on the 5th day. All the controls were negative.

"A dilution of 1 in 30 would appear to be a low one on which to diagnose a positive 'Weil Felix' reaction, but the interesting point is that these agglutinations appeared in the patient's blood between the 5th and 12th day of the illness.

"Dr. Pirie, of the South African Institute for Medical Research, informs me that frequently in cases which are clinically severe typhus, agglutination of only 1 in 10 to 1 in 40 are obtained. It may be that a similar condition of affairs holds good in East Africa. This, however, will be further tested."

The point arises as to how the disease is spread and by what it is carried. Pediculosis, which is the curse of countries where typhus is endemic, is conspicuous here by its rarity, and the social type of the cases is not one which is, as a rule, affected by pediculi or any other form of vermin. I myself had always imagined that the disease was insect-borne and that, most probably, a tick was the agent. My reasons for suspecting a tick were: (*a*) the slight epidemicity of the disease, not more than single cases having occurred in any one house, and (*b*) several of the cases have complained of and exhibited septic sores which they have described as the result of severe tick bites. It is, of course, true, that everyone in this part of the world suffers more or less frequently from the attacks of ticks, jiggers, and other biting insects.

I append four charts of typical cases with brief notes of the progress of the disease.

CASE 1.

Mrs. F.K. Age 47. Admitted 13.9.1920.

Complained of being ill seven days with headache, sore throat, pain in joints and limbs. A few papular spots on right shoulder, knees and fingers swollen and painful, spleen palpable.

15.9.1920. Rash very profuse over whole of trunk and limbs, including palms of hands and soles of feet. Tongue very foul, joint pains severe.

18.9.1920. Rash darker.

23.9.1920. Temperature has gradually come down to normal. Pulse remains high. Rash darker. Patient is drowsy.

Death occurred on 26.9.1920 after gradually increasing coma. A lumbar puncture was performed before death; there was no excess of fluid, and the fluid was sterile.

Widal reaction and blood cultures were all negative.

CASE 2.

Miss B. M. Age 53. Admitted 18.10.1919.

Previous to admission had felt out of sorts for about a week and for five days had complained of what she took to be a septic sting on the left thigh. Has had a very bad head and backache.

Developed a rash all over on the morning of admission; on admission she seemed very ill. Tongue dry and very foul. Dusky papular rash over whole body and extremities, including palms of hands and soles of feet. Sloughy patch of cellulitis on outer side of left thigh. No enlargement of glands. Spleen not palpable.

19.10.1919. Complains of pains in joints, chiefly wrists.

20.10.1919. Rash much darker. Temperature coming down. She made an uninterrupted recovery.

Traces of the rash persisted for some time after the temperature became normal.

This patient had a severe attack of enteric some three months later while on her way home.

CASE 3.

Mrs. I. D. F. Age 32. Admitted 9.12.1920.

Previous to admission had complained of headache and pyrexia and pain in the back and limbs, and had complained a short time before of a septic tick bite on the left thigh.

On the morning of admission a few discrete red papular spots had appeared on the left leg, and at the beginning of the illness a dusky mottling of the limbs had been noticed.

10.12.1920. Rash appeared over whole body and limbs, including palms and soles.

Original spots darker in colour.

Weil Felix reaction negative.

11.12.1920. Tongue very dry and foul. Rash darker. Joint pains definite.

16.12.1920. Weil Felix reaction positive, 1 in 40.

Patient made an uninterrupted recovery.

CASE 4.

Captain E. D. F. Age 30. Admitted 17.6.1915.

Gave a history of a slight temperature and malaise for a week associated with a septic sore on the right forearm the result of an insect bite.

A pink rash very much like typhoid appeared over the whole body on the morning of admission.

During his stay in hospital the rash is noted as getting gradually darker until with the fall of temperature it began to fade. He complained very much of great pain in the joints, chiefly the wrists, which were slightly swollen.

Widal reactions were negative throughout.

This case was an officer of the R.A.M.C., stationed in Nairobi, and living in a good house.

Owing to the rush of War patients the notes on this case are very incomplete.

Waterlow & Sons Limited London Wall, London.—1921.

4 Hour Chart.

DISEASE.

Name { Mrs / F.K.

Age 47.

Diet

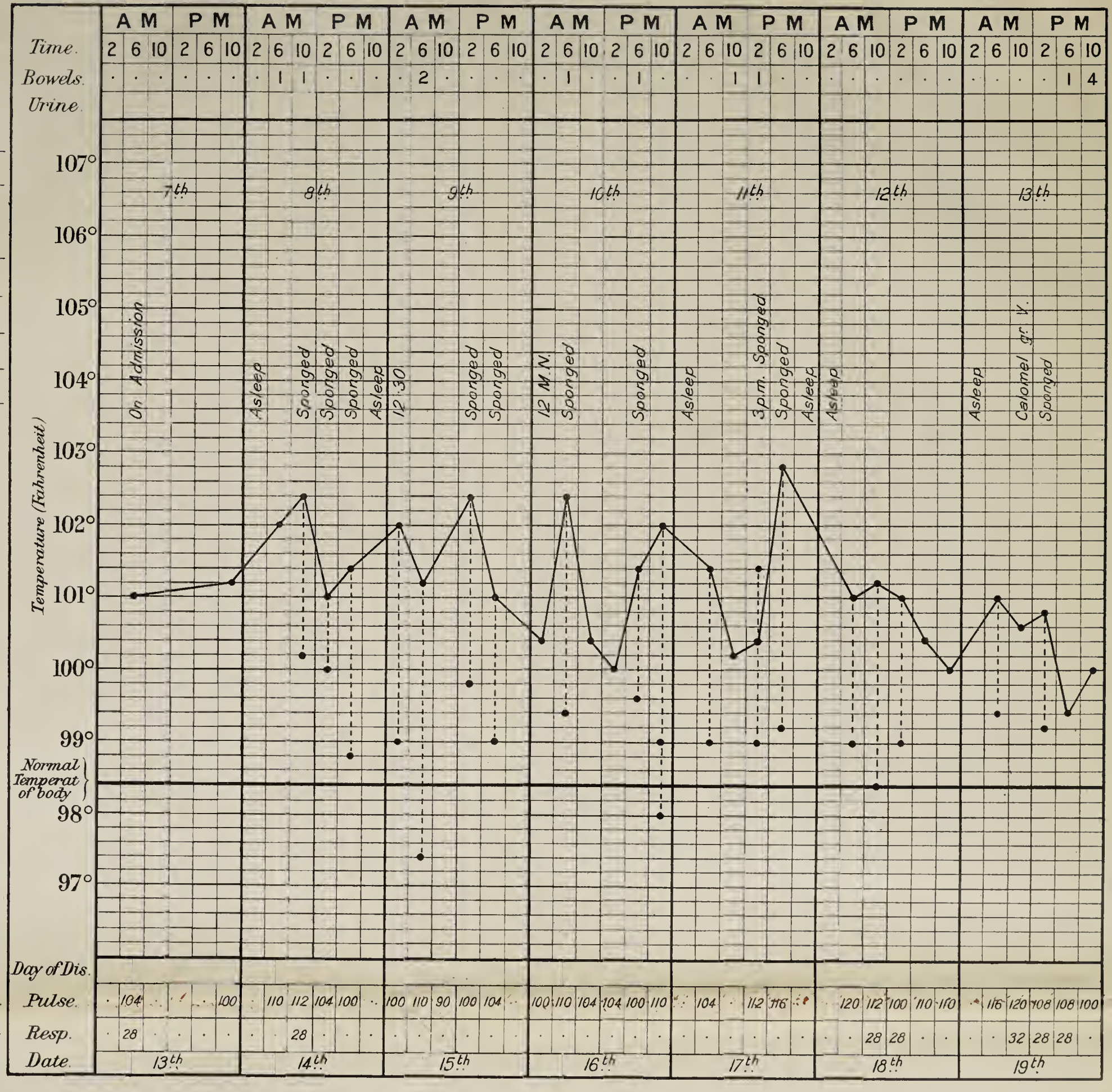
Case Book No.

Notes of Case

Date of admission

13 · 9 · 20

Result



WATERLOW & SONS, LIMITED, LONDON WALL, LONDON

4 Hour Chart.

DISEASE.

Name { Mrs F.K.

Age 47.

Diet

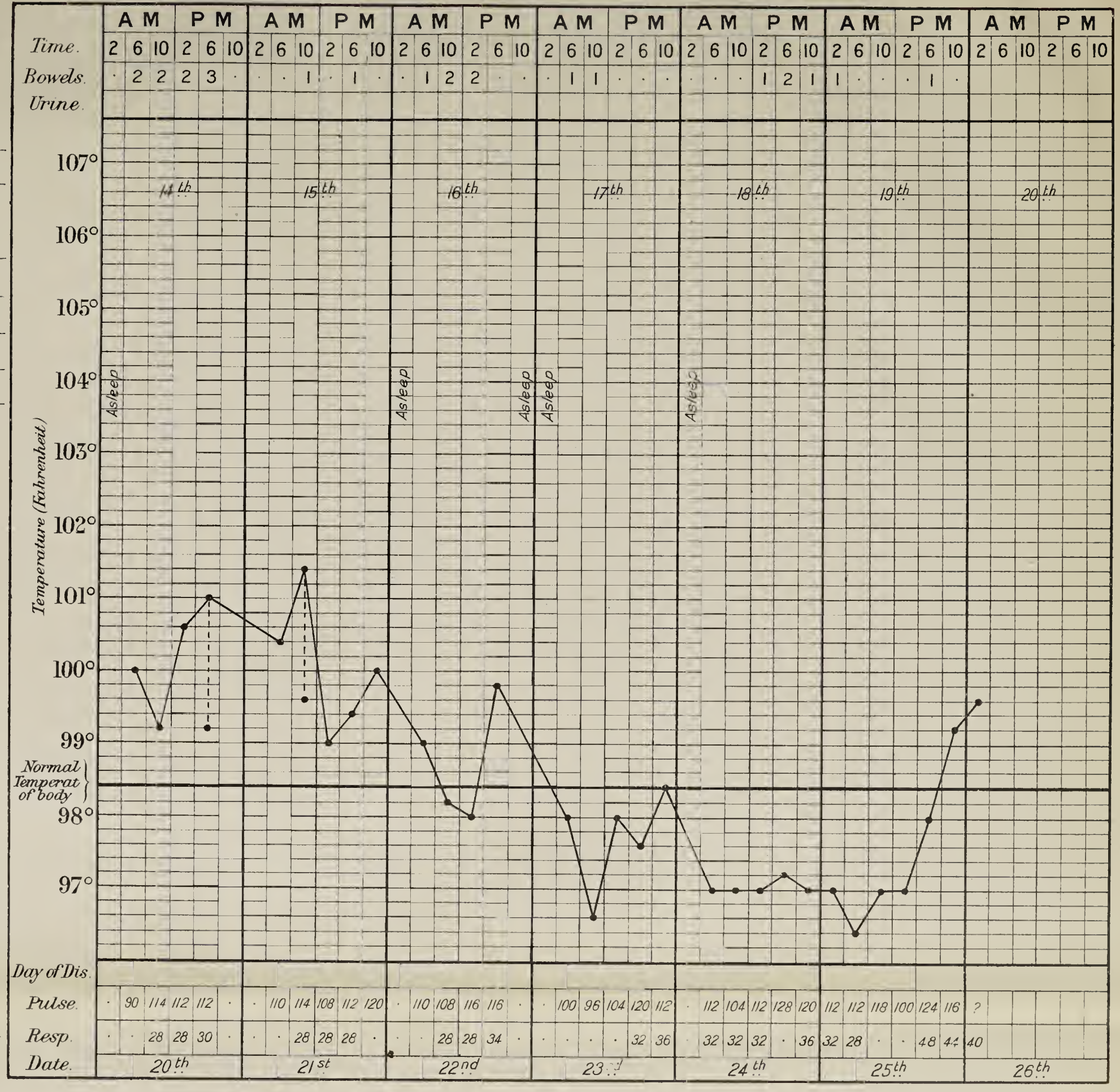
Case Book No.

Notes of Case

Date of admission

13 · 9 · 20

Result



WATERLOW & SONS, LIMITED, LONDON WALL, LONDON

4 Hour Chart.

DISEASE.

Name { Miss B.M.

Age 53.

Diet

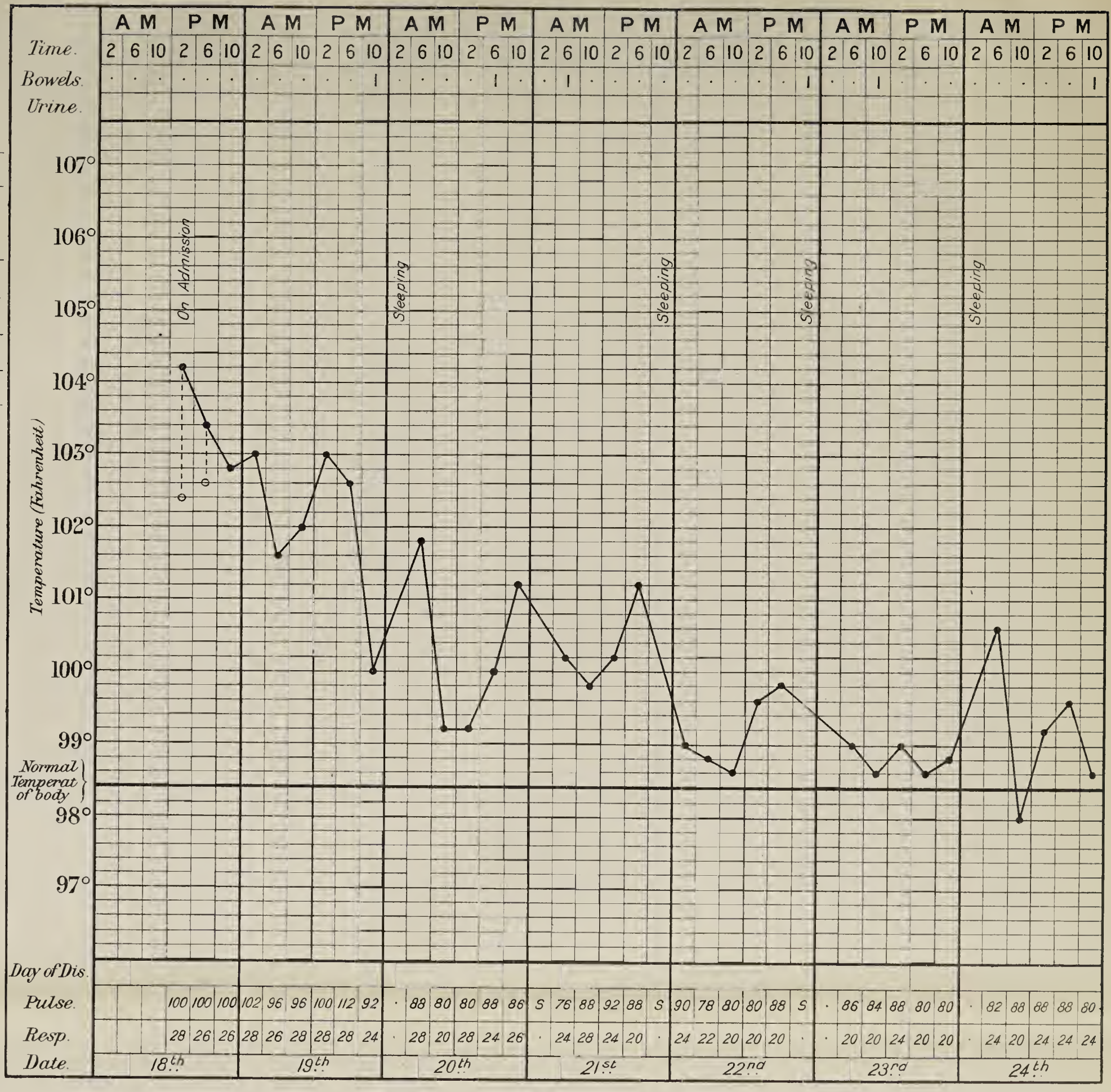
Case Book N°

Notes of Case

Date of admission

18 · 10 · 19

Result



WATERLOW & SONS, LIMITED, LONDON WALL, LONDON

4 Hour Chart.

DISEASE.

Name { Miss / B.M.

Age 53

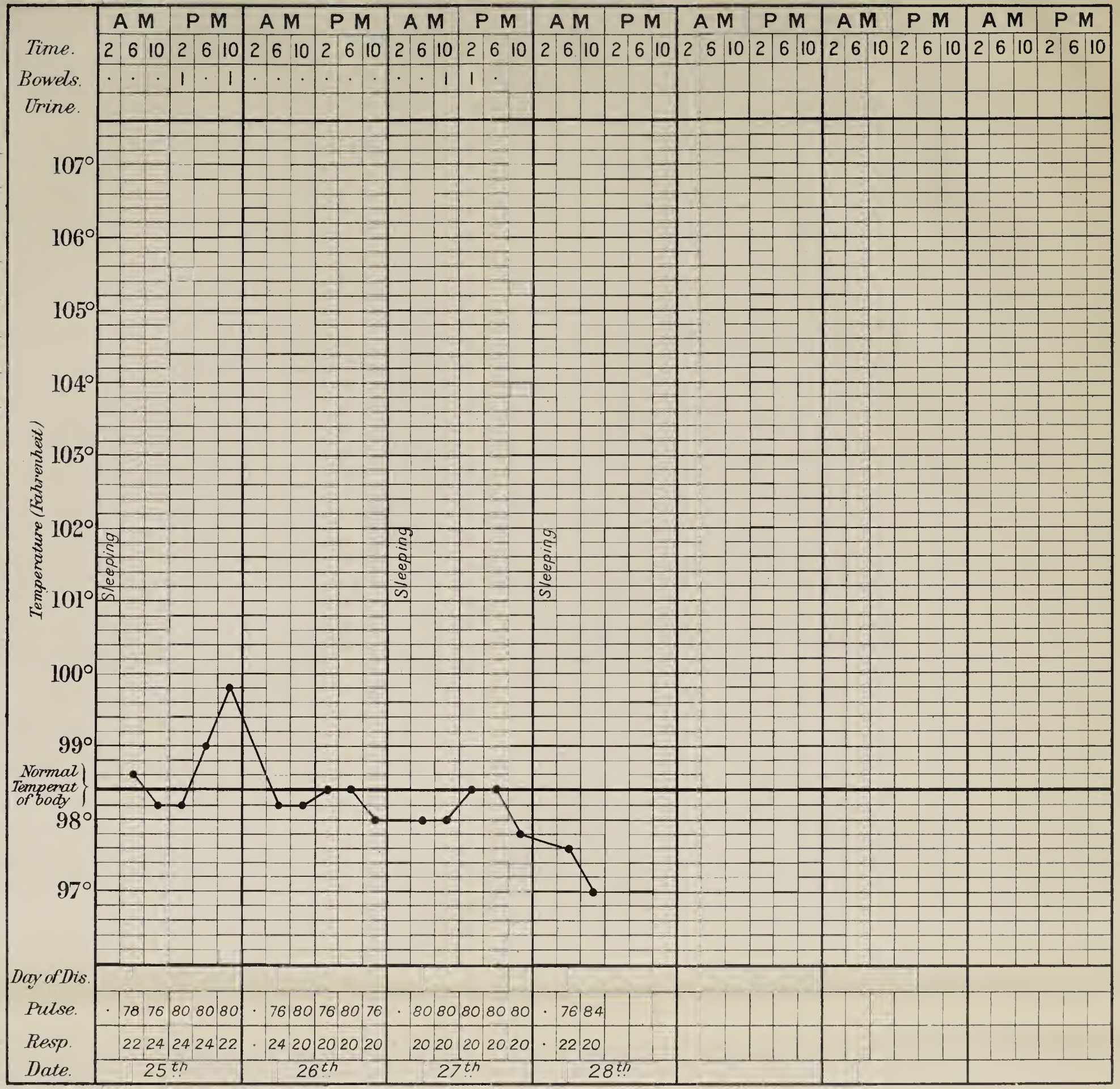
Diet

Case Book N°

Notes of Case

Date of admission 18/10/19

Result



WATERLOW & SONS, LIMITED, LONDON WALL, LONDON

4 HOUR CHART.

DISEASE.

Name { Mrs / I.D.F.

Age 32

Diet

Case Book N°

Notes of Case

Date of admission

16 . 12 . 20.

Result

	A M			P M			A M			P M			A M			P M			A M			P M			A M			P M			A M			P M		
Time.	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10
Bowels.															2	·	2	·	1	·	·	·	·	·	·	·	1	·	·	·	·	1	1	·	·	·	·	2	·	·	·	·
Urine.																																								

Temperature (Fahrenheit)

107° 106° 105° 104° 103° 102° 101° 100° 99°

Normal Temperat of body

98° 97°

Spanged Spanged Spanged Spanged Asleep Spanged Spanged Asleep Spanged Spanged Spanged

Temperature (Centigrade)

42° 41° 40° 39° 38° 37° 36° 35°

Day of Dis	4						5						6						7						8						9						10		
Pulse.				96	96		100	100	·	100	100	96	96	100	92	88	96	100	96	96	96	96	92	96	·	96	84	96	96	96	·	92	84	96	96	92	88	88	88	86	84	92
Resp.																																									
Date	9th						10th						11th						12th						13th						14th						15th		

WATERLOW & SONS LIMITED, LONDON WALL, LONDON

4 Hour Chart.

DISEASE.

Name { Capt / E.D.F.

Age 30.

Diet

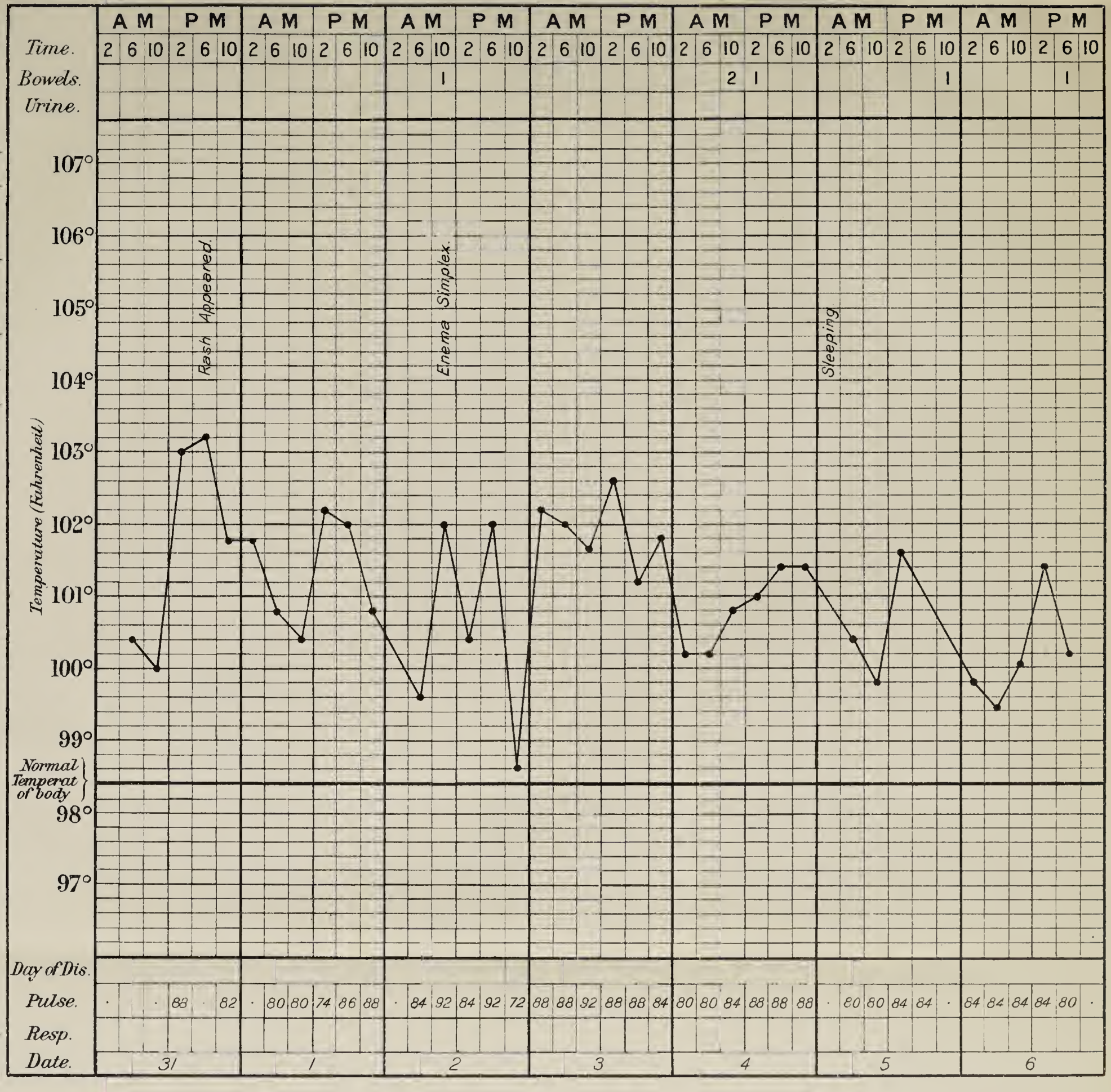
Case Book N°

Notes of Case

Date of admission

31 May '15.

Result



WATERLOW & SONS, LIMITED, LONDON WALL, LONDON

4 Hour Chart.

DISEASE.

Name { Capt / E.D.F.

Age 30.

Diet

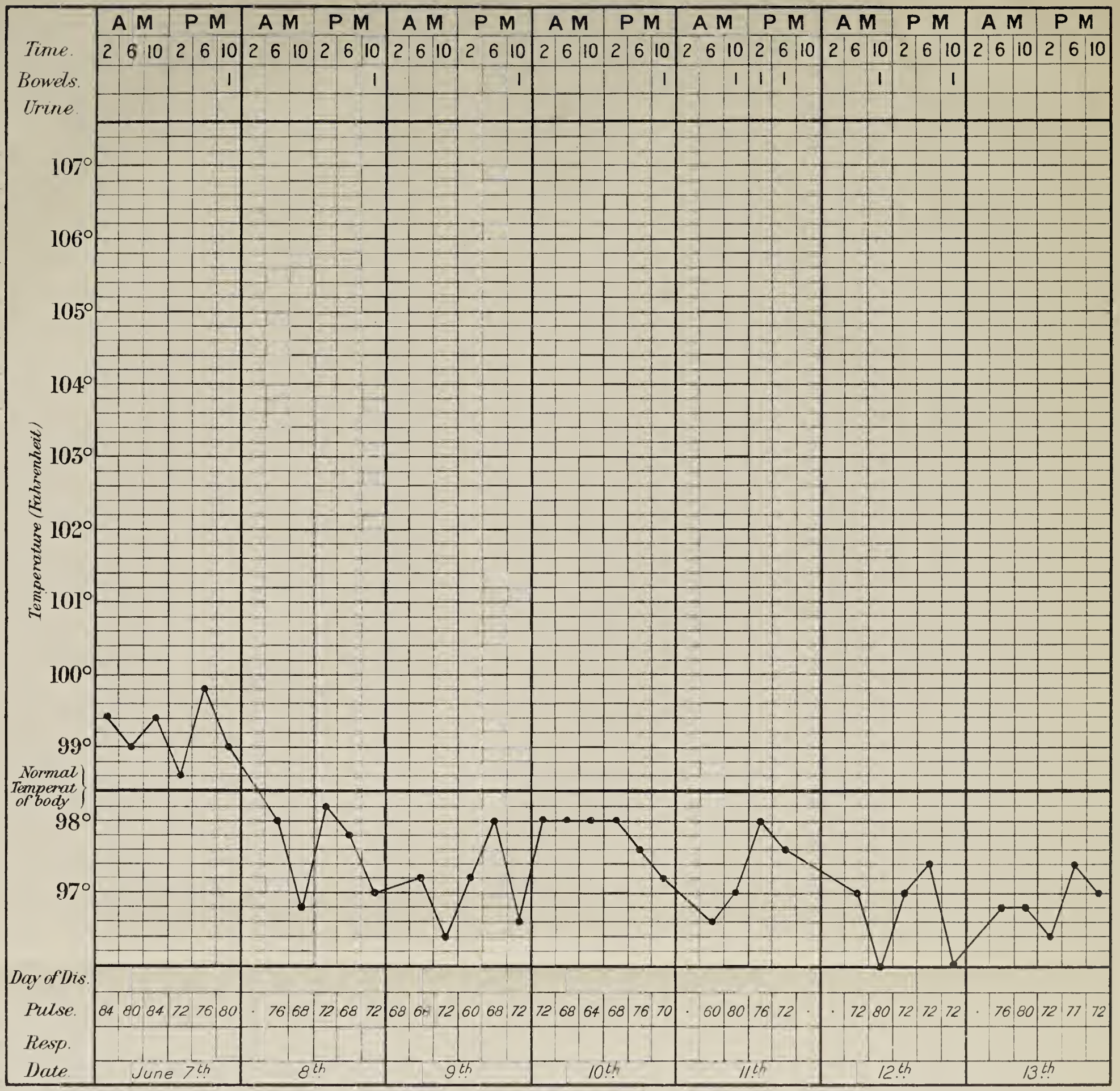
Case Book N°

Notes of Case

Date of admission

31 · 5 · 15

Result



WATERLOW & SONS LIMITED LONDON WALL LONDON.

4 HOUR CHART.

DISEASE.

Name { Capt E.D.F.

Age 30

Diet

Case Book N°

Notes of Case

Date of admission

31 · 5 · 15

Result

	A M			P M			A M			P M			A M			P M			A M			P M			A M			P M			A M			P M		
Time.	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10
Bowels.															2																					
Urine.																																				
			M		E				M		E				M		E																			

Temperature (Fahrenheit)

107° 106° 105° 104° 103° 102° 101° 100° 99°

Normal Temperat of body

98° 97°

Temperature (Centigrade)

42° 41° 40° 39° 38° 37° 36° 35°

Day of Dis.																																				
Pulse.	76		100				88		96				80		80																					
Resp.																																				
Date.	June 14th						15th						16th																								

WATERLOW & SONS, LIMITED LONDON WALL LONDON